

## INSIDE DOPE

by GEORGE F. TAUBENECK

## Story of the Week

## Who Pays?

## Read and Weep

## Frozen Foods Insure

## Happy Marriages

## Frozen Toast

## Self-Examination Is Good

## For the Soul

## Quotable Quotes

## Story of the Week

The small boy trudged home reluctantly, his report card clutched in a grimy fist. His mother met him in the doorway of their home.

"Let's see your report card, Bobby."

"I got a 'D' in spelling and a 'D' in geography, and an 'E' in arithmetic," confessed the boy shamefacedly. "But," he announced, his face brightening, "I got an 'A' in Social Planning!"

Somewhere a moral can be found, we think.

## Who Pays?

"Social" theories always seem like a good idea at the time. The question is: Who's going to pay the check? In this connection, the governor of Virginia, William H. Tucker has stated:

"We in Virginia have consistently resisted this trend. In our state and local governments, we have advocated sound fiscal programs based upon balanced budgets. We have not sought to leave the impression with the people that we can offer them something for nothing, or that we can dispense governmental largess without imposing the taxes that are necessary to provide the revenues. Unfortunately, this has not been true of some bureaucrats and politicians of little principle who operate from Washington. With the encouragement of all manner of selfish-interest groups, so-called programs for the aid and relief of the states and localities continue to grow and expand at the seat of our national government, without any consideration whatsoever for the national welfare.

"The practice of continuing and enlarging Federal grants-in-aid bears the threat of destroying the foundations of local government and of subjugating the nation to a bureaucratic juggernaut. It shows little, if any concern for the individual and his liberties. The initial fallacy of the entire theory of Federal aid is that the funds can be dispensed by a benevolent government at Washington with little cost to the state and local governments, or to their citizens. Nothing could be further from the truth. All the funds the Federal government ever had, or ever will have, came from the taxpayers of the various states. Whatever the Federal government allocates to the states comes from the people. Before this tax money comes back to the states and localities in the form of grants-in-aid, substantial tolls are exacted from it to maintain and enlarge the bureaucratic central agencies. Furthermore, citizens of such states as Virginia in this way ship a disproportionate part of their tax resources to Washington for the support of Federal-aid programs in other states, where less efficient governments call for greater and greater Federal dispensations.

"A second major fallacy of Federal aid lies in the fact that the Federal government actually has no funds to dispense. The United States is laboring under the largest national debt in its history. By juggling its account books and ignoring the facts, the Federal government from time to time succeeds in deluding many citizens into the belief that it is operating on the soundest of fiscal principles. From 1934 to 1940, Federal cumulative deficits were \$26,529,000,000. During the same period, grants-in-aid totaled \$21,259,000,000 thus accounting for 80% of the deficit, which accrued during that period. From 1941 through 1946 grants-in-aid added another \$13,837,000,000 to the Federal deficit. Thus, current Federal-aid programs not only must be borne by the American taxpayers, but each succeeding program adds just that much to the highly burdensome carrying charges

(Concluded on Page 8, Column 1)



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## H. L. Clary Becomes General Sales Manager at Norge

DETROIT—H. L. "Red" Clary has been appointed general sales manager of Norge Div., Borg-Warner Corp., it is announced by George P. F. Smith, president of the division. Clary succeeds John A. Underwood, who resigned recently.

In the appliance business since 1927, when he went to work for Ludwig Hommel Co., distributor in Pittsburgh, Clary has been in sales work in all levels of the business—retail, wholesale, and manufacturer.

Following service with the War Production Board in Washington during the war, he joined the Norge factory sales staff as sales promotion manager in 1945. In 1948 he was named director of sales.

## Jordon Field Men See Glass-Front Open Case

PHILADELPHIA — Unveiling of the new Jordon glass front open frozen food display cabinet highlighted the recent three-day sales meeting at the Jordon Refrigerator Co. factory here attended by 18 Jordon field men.

The case was introduced by Harry Fogel, vice president and director of sales, who pointed out that the new model freezer for ice cream and frozen foods has a much deeper glass front than heretofore used on this type of case.

The cabinet is designed to operate at below zero temperatures. It is equipped with large freezer plates and extra heavy duty wrap-around coils.

Other 1950 products shown included a line of dry storage beverage coolers and merchandising cabinets for frozen foods and ice cream. Reach-ins feature a new type of Jordon designed high humidity blower coil for improved preservation of moisture laden foodstuffs.

Frank Fogel, president of the company, told the visiting field men that "we have made large capital investments in tools, dies, and other machinery in order to increase our production and improve both design and manufacturing methods."

"Our new wing, with over 100,000 sq. ft. of floor space, enables us to maintain huge stocks of steel and component parts on hand at all times."

James J. Hayes of the Jordon sales division, pointed out that the company has widened and liberalized its warranties for the benefit of dealers.

The Jordon triple warranty now includes a standard one-year manufacturer's warranty, a five-year warranty against food spoilage in frozen food and ice cream merchandising cabinets.

## After-Effects of Coal Strike May Hit Suppliers

DETROIT—With the coal miners returning to work on a full five-day basis, industry is hopeful that the effect of the strike on supplies of raw materials and parts, particularly those made of steel, will be kept at a minimum.

There have been some cuts in production already, Servel closing down for a week because of a shortage of steel supplies, but the critical time may come within the next three or four weeks. Within that time the effect, if any, on component suppliers would be evidenced, it is believed.

## Harvester Adds 2 Refrigerators To 1950 Line

EVANSVILLE, Ind.—International Harvester Co. has announced two new additions to its line of "femineered" refrigerators—a 7.6-cu. ft. model offered at a new low price, and a deluxe 9.2-cu. ft. unit featuring on-the-door storage and cold-to-the-floor design.

Suggested retail selling price of Model U-76, the smaller of the two, is \$199.95, and of the larger unit, Model H-92, is \$339.95.

Both models incorporate International Harvester's exclusive built-in bottle opener on the door frame, Shadowline styling with full length doors, porcelain enameled interiors, and International Harvester's sealed refrigerating unit with a 5-year warranty attached permanently to the cabinet.

Featuring the lowest price in the company's history, the new International Harvester Model U-76 breaks into the below \$200 price bracket with an all-feature, extra-capacity, full-family-size refrigerator embodying the latest full-length door design.

Big 7.6-cu. ft. capacity is combined with a cabinet requiring actually less than 25 by 29 in. of floor space and 55 in. of wall height.

The model U-76 provides ample frozen food storage, fresh meat storage, a large covered crisper, and 14½ sq. ft. of shelf area. It has an abundance of double-height shelf space, easily accommodating 12 quart bottles.

Another feature of the model U-76 is its flexibility of shelf arrangement. The shelves can be arranged in 12 different ways to suit individual requirements.

The new model H-92 with "Pantry" (Concluded on Page 29, Column 2)

## Vogt, Ziebell Get New McCray Posts

KENDALLVILLE, Ind.—R. E. Abbott, vice president in charge of sales of McCray Refrigerator Co. here has announced appointment of H. B. Vogt as sales manager and C. H. Ziebell as assistant sales manager.

For four years prior to joining McCray, Vogt was with Hussmann Refrigerator Co. as national sales promotion manager. In that assignment, he covered 48 states, handled national sales meetings, merchandising clinics, and convention exhibits.

(Concluded on Page 4, Column 2)

## It's Called 'Carrene-7'

## Newly-Developed Refrigerant Said To Increase Compressor Capacity

HOUSTON, Tex.—Discovery of a new refrigerant was reported recently to members of the American Institute of Chemical Engineers here by two Syracuse scientists working on the research project for Carrier Corp.

The new refrigerant, known as "Carrene-7", is expected by Carrier to find widespread use in the air conditioning and refrigeration industry. Using the new refrigerant, it will be possible to do the same number of refrigeration jobs with fewer machines, and consequently will contribute to the general economy of the industry, the company said.

## Soda Fountain Seen As 'Profit Savior' In Drugstore Field

NEW YORK CITY—"Soda fountain sales are the method to beat the profit squeeze on drugstores" was the theme of the spring meeting here last week of the Associated Chain Drug Stores, comprised of 27 retail drug chains operating approximately 3,000 outlets.

The entire meeting was devoted to methods aimed at increasing fountain sales in retail drugstores. Points stressed included the necessity for having good sanitary and display facilities, quality merchandise, efficient and properly trained personnel, and workable expense control.

The association recommended that retail drugstores devote one third of their floor space to fountains and one third of advertising budgets to fountain sales promotion.

Expansion of fountain volume represents a concrete and effective weapon against an increasingly serious profit squeeze confronting members of the organization, declared Marshall K. Wood, vice president of the Associated Chain Drug Stores.

Wood reported overhead of retail drug chains is constantly increasing, while at the same time retail prices remain fixed either because of fair-trade arrangements or the pressure of competition in other non-fair-

(Concluded on Page 29, Column 4)

## Norge Models Have Horizontal Freezer

(See Photo page 4)

DETROIT — Norge Div., Borg-Warner Corp., has announced the introduction of its new "Crosstop" refrigerator—a combination refrigerator and super-freezer.

Available in two sizes, its outstanding feature is a full-size, non-sweat freezer extending across the full width of the top. This freezer is said to hold a temperature of -20° F.

Model SF-85 (8 cu. ft.) provides space for 32 lbs. of frozen storage. Model SF-105 (10 cu. ft.) is the deluxe version with gold-colored trim. It contains space for 44 lbs. of frozen storage.

These models have been planned to give the maximum amount of shelf space, according to Norge. A fold-away shelf makes for greater flexibility, and a drop-down door of freezer compartment serves as a handy loading and unloading shelf.

Both boxes are equipped with jumbo "Coldpacks" for meat storage and full-width "Hydrovoirs" for fruits and vegetables.

Household Unit  
Sales In 1949  
Hit 4,490,000

Below Record Set In '48;  
8-Cu. Ft. & Larger Sizes  
Continue Most Popular

DETROIT—World sales of household electric refrigerators in 1949 by U. S. manufacturers totaled approximately 4,490,000 units, according to estimates made by AIR CONDITIONING & REFRIGERATION NEWS.

Sales reported to National Electrical Manufacturers Association (Nema) by the producers of electric refrigerators who report sales to that association, totaled 3,852,420 units.

The estimated 1949 total for all manufacturers did not break the all-time record of 4,810,000 units set in 1948, but it was far ahead of any other year.

A breakdown of the Nema report by cabinet sizes showed that the 8-cu. ft. size was again the top classification, followed closely by the 9 and 10-cu. ft. classification (grouped to-

NEWS readers will find a tabular breakdown of world refrigerator sales on page 4.

gether). The 8-ft., 9-and-10-ft., and 7-ft. cabinet classifications all showed lower totals than in 1948, but the 6-ft. and the 11-and-12-ft. (grouped together) classifications showed gains.

Export sales in the Nema group dropped from 195,229 in 1948 to 148,113 last year.

Since manufacturers do not report value of their products, it is rather difficult to determine a nationwide average price. However, the Electric Association of Philadelphia, whose reports on sales in and around the Philadelphia area represent a good average, showed average retail prices of refrigerators sold in 1949 to be \$276. In 1948 the average retail price in the Philadelphia area was \$278.

## N. Y. May Shut Off 'Wasteful' Systems

NEW YORK CITY—Anyone using non-recirculating water for refrigeration and air conditioning systems would be adjudged a water waster and would have his water shut off, under "seasonal restrictions" which New York's Water Commissioner Stephen J. Carney said he would propose to Mayor O'Dwyer as soon as possible.

Regulations have been passed requiring new installations to be equipped with water-conservation devices, but the seasonal restrictions would apparently apply to all existing systems.

The proposed seasonal restrictions would close all swimming pools using city water and ban all hose permits.

## Buchholzer and Mack To Aid Newberg at Airtemp

DAYTON—W. C. Newberg, president, Airtemp Div. of Chrysler Corp., has announced the appointment of Carl E. Buchholzer and W. E. Mack to his staff. Buchholzer was named assistant to the president, while Mack will handle special assignments for Newberg.

Buchholzer has been with Airtemp since the organization first moved to Dayton. As one of the first employees at the Dayton plant, he started to work there as a job setter. In 1938 he was promoted to foreman of the machine shop and a year later moved up to general foreman of the entire machining division.

By 1941, when the plant converted to war work, Buchholzer was assistant general superintendent, and in 1944 he was made general superintendent of the Dayton plant. He held this position until November, 1948, when he was appointed service manager for the division.

Mack, a native of Detroit, has been with Chrysler Corp. since 1935. He came to Dayton in 1947 when he was assigned to Airtemp as superintendent of planning. Prior to then, he was in the corporation purchasing department in Detroit.



## Rise In Air Conditioning Units Poses Problem of Sewer Disposal In Dayton

DAYTON—Under a headline "Cold Air Units Cause Worry for Officials," the Dayton *Journal-Herald* reports that the city commission is worrying about overloaded sewers due to air conditioning units.

The possible expansion of air conditioning and its effect on the sewer system was discussed in relation to the city's water filtration program, according to the newspaper.

Under consideration is an ordinance which would require that air conditioning replacements should not discharge any more water into the sewer system than they did before.

Commissioner Merle P. Smith was quoted as protesting that the city "should not penalize those who already have air conditioning facilities."

Decision on the matter was postponed until the commission gets a report on the city's sewer program.

## Output of Taylor Freezers Increases at New Factory

ROCKTON, Ill.—Tekni-Craft is now in regular production of Taylor freezers at a rate exceeding the production of the Beloit factory that was destroyed by fire Sept. 7, 1949, the company has announced.

A large backlog of orders is being filled rapidly, but even the present increased capacity will fall short of the demand indicated by the rate at which new orders are arriving. All signs point to greater sales volume than last year, according to Charles Shaw.

## Fire Damages Neb. Locker Plant

DUNNING, Neb.—Damage amounting to \$25,000 was done to the locker plant of Don Baxter here by a fire that started in the rear of the plant where lard-making was in progress. The brick-veneered building containing 550 lockers was destroyed, and the fire spread to several adjoining business houses, causing \$35,000 damage in all.

## June Release Is Scheduled For REMA Technicolor Film On Up-to-Date Freezer Use

WASHINGTON, D. C.—Scheduled for completion in June is an educational technicolor film demonstrating the proper uses of food freezers in connection with modern home management.

The film, sponsored by the Refrigeration Equipment Manufacturers Association, is being organized and edited by The Blakemore Co., of Des Moines, Iowa, according to Howard R. Roberts, chairman of the food-freezer section of Rema.

Home-freezing procedures demonstrated in the film will include: preparation and use of frozen meats, vegetables, fruits, baked goods, and planned-overs; proper inventory and storage; long-range meal planning; and freezer-use techniques that save time, energy, and food cost.

The film will be made available to organizations interested in up-to-date procedures for using food freezers.

## Automatic Cut-In Above 80°

## Contractor Uses Zone Cooling System To Offset Heat from Store Lighting

COLORADO SPRINGS, Colo.—Through ferreting out unusual markets and building recognition for the advantages of scientifically cooled air, Simon Halle of Halle's here has created an excellent sales volume on package air conditioning.

Even though Colorado Springs, at 6,000 ft. altitude, is cool in the summer mornings and evenings, mid-afternoon temperature reaches 98° and higher, according to Halle. This results in slacking off of sales in retail stores and particularly, in a reduction of efficiency and comfort in offices.

Thus, through the new Supply & Equipment Div. of Halle's, one of the largest G-E dealerships in the Rocky Mountain area, Halle has been able to promote package cooling equipment installations in doctors', lawyers', and insurance agents'

offices, as well as many units in small retail stores in the downtown shopping district.

Inasmuch as Halle's incorporates among its divisions a sheet metal crew, the Colorado dealer can install correctly engineered systems with ductwork distribution to overcome summer heat conditions effectively.

"Many of the evaporative cooling systems in restaurants, hotels, lodges, etc., are swinging over to mechanically refrigerated air conditioning," Halle said, "because with proper humidification of the arid atmosphere, and controllable temperatures, much more comfort is being insured."

Perhaps the most unusual air conditioning job which Halle's has been called on to perform came with completion of a smart new, multi-story department store in Colorado Springs. The management of the store, devoted primarily to fashions, eschewed the usual fluorescent light through the building, and concentrated instead on large amounts of incandescent light on all floors.

The result, it developed, was so much heat spread through the building that when the store was crowded with customers, temperature rose to an uncomfortable high, posing a serious problem. To overcome it, Halle designed a 20-ton remote system, with ducts going into each floor on a simple zone system, which cuts in automatically when the temperature rises above 80°.

As a result, the store remains comfortably cool and properly humidified during the entire year.

## February Totals Indicate Record-Breaking Crosley Sales of Durable Goods

CINCINNATI—Crosley Div., Avco Mfg. Corp., announced that its dollar and unit sales this year are breaking all records for the firm's 29-year history.

Dollar volume in February, a normally low month for durable goods, exceeded the best month in 1949 and topped February of last year by a substantial margin, it was reported.

Unit sales of the company's refrigerators last month soared to 118% higher than February of 1949 and February, 1950, was the largest month in the company's history. Television business for February rose 93% and radio sales were up 175%.

Sales for home and farm freezers, electric ranges, electric water heaters, and kitchen equipment also showed sharp increases and reflected both increased demand and major expansion of these lines since their introduction last year, according to the company.

W. A. Blees, Avco vice president and Crosley general sales manager, said the demand "was actually greater than the sales figures indicated, since it has steadily exceeded our production."

## Package Unit In Dealer's Store Tells the World 'He's In Business'

COLORADO SPRINGS, Colo.—An effective means of announcing a dealer's entry into the package air conditioning field was taken here recently when Strang's installed a 5-ton package conditioner.

Every visiting homeowner is escorted to the rear of the store at some time during the visit, and the package cooling unit demonstrated.

## OUR SECRET IS too good TO KEEP



THE PUNXSUTAWNEY COMPANY

## PUT 'EM ALL TOGETHER...



...it's easy to see why Fedders Dealers will again double their sales this Summer!

Climb aboard the Fedders bandwagon for a nifty-fifty! Your summer profits will zoom if you sell this fast-moving line of smart room air conditioners. Fedders has packed 54 years of engineering know-how into this new complete line of attractively styled models.

History making cooling capacity! For the first time in the history of room air conditioner design, Fedders offers a full ½ ton (6020 btu/hr.) and a full ¾ ton (9010 btu/hr.) window models. Ratings are certified at ASRE conditions.

Compare this line with any other room air conditioners regardless of price. Look at these sales-clinching features: exclusive rotatable Comfort Circle Grille; permanently oiled fan

motors; exclusive V-Type twin evaporators; hermetically sealed, all-weld refrigeration system.

Streamlined model in both furniture-styled and smooth ivory cabinets fit into the window, plug in like a radio... no ducts, no water connections, no pipes. Yes, you'll agree that Fedders gives your customers more air conditioner per dollar.

**fedders**

A GREAT NAME SINCE 1896

## MAIL COUPON NOW FOR FACTS!

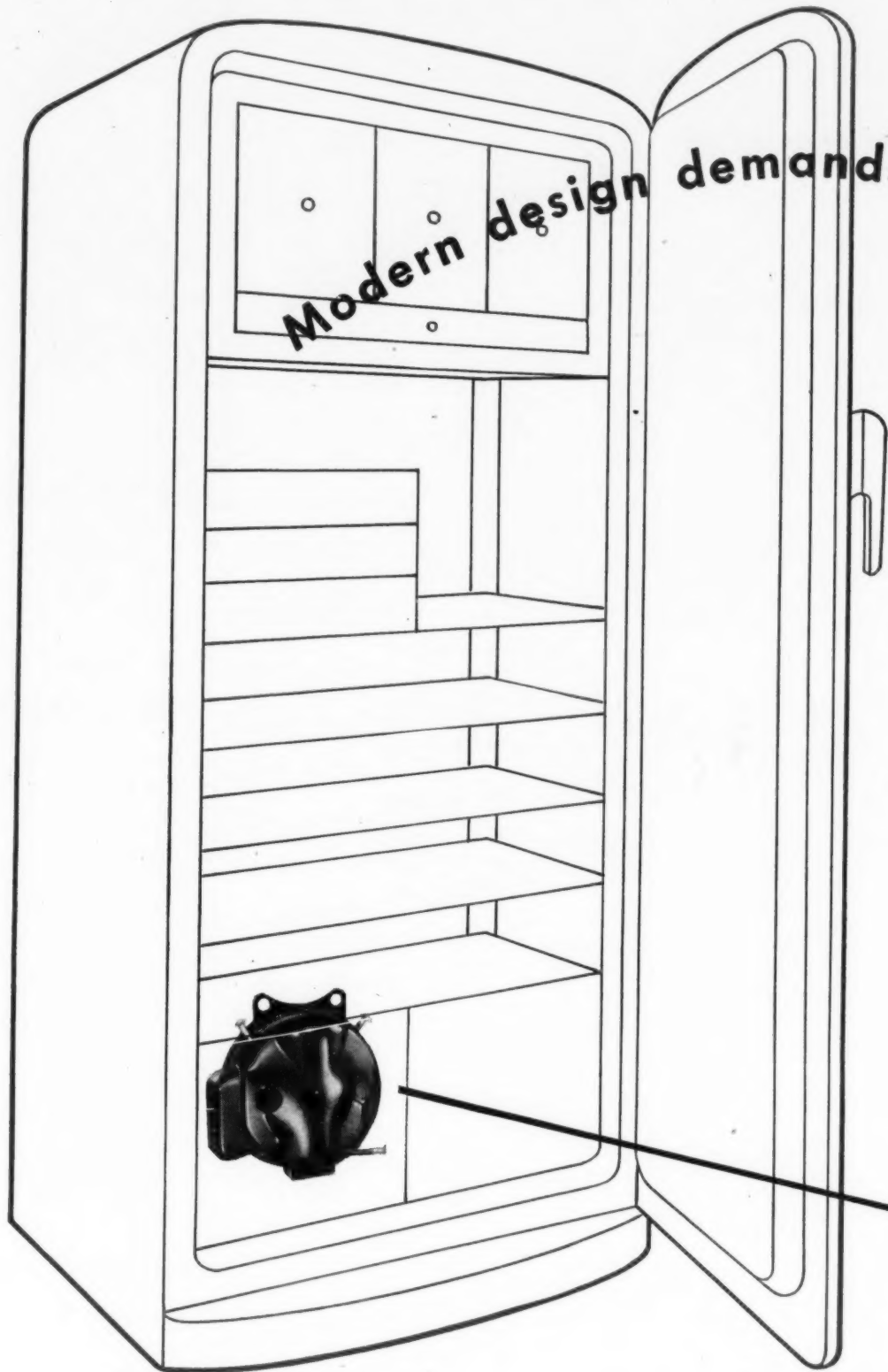
FEDDERS-QUIGAN CORPORATION,  
Unit Air Conditioner Division  
Dept. AC-2, Buffalo 7, N. Y.

Gentlemen:

Please send me complete information on the 1950 line of Fedders Room Air Conditioners for we'd like to get aboard your profit bandwagon selling this new comfort appliance.

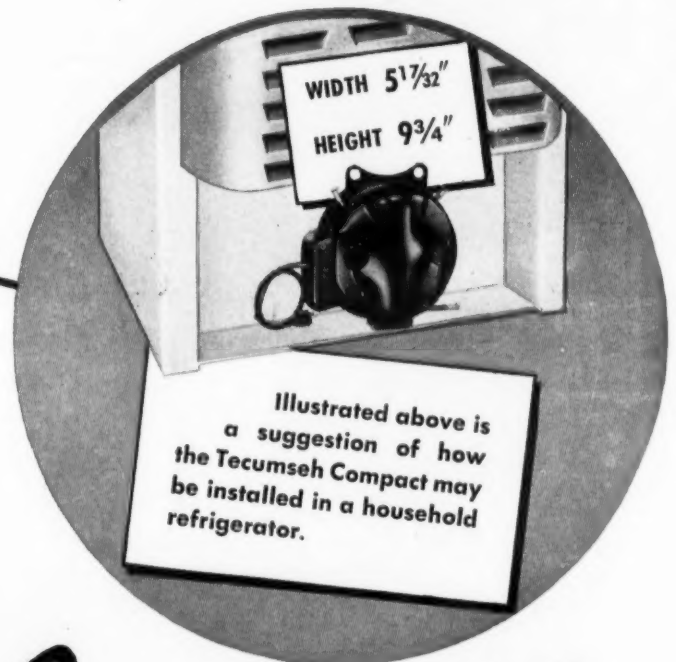
Name \_\_\_\_\_  
Company \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_





Modern design demands MORE food storage capacity...

with NO INCREASE  
in outside cabinet  
DIMENSIONS!



That's why the trend  
is to the TECUMSEH

**COMPACT**

Modern design gives today's refrigerators a greater food storage capacity in relation to overall cabinet size than was deemed possible just a few short years ago. Unit compartments have been reduced in size or eliminated entirely. Food compartments have been extended, in many cases substantially to floor level. Thus storage space has been increased by two or more cubic feet with no increase in exterior dimensions, and with but little added load on the compressor.

This remarkable achievement is made possible by the Tecumseh Compact. Due to its small size, the Compact may be installed in a smaller-than-usual unit compartment, mounted on the back of the cabinet, or placed in a "dimple" in the cabinet liner. When used with the new

flue-type static condenser, food storage space is extended to the bottom of the refrigerator.

The tremendous popularity of the Tecumseh Compact is shown by the fact that more than 100,000 refrigerators equipped with Tecumseh Compact compressors were placed in homes in the first full year of production. Today, over 200,000 Tecumseh Compacts are in use in home freezers, beverage coolers and vendors, water coolers, complete kitchens, midget trailer and sports refrigerators, as well as many models of household refrigerators.

For Tomorrow's design in your refrigerator Today—specify the Tecumseh Compact. Write or wire for complete details.



**TECUMSEH PRODUCTS COMPANY**  
**TECUMSEH, MICHIGAN**

EXPORT DEPARTMENT: 2111 WOODWARD AVE., DETROIT 1, MICH.

The World's largest  
producer of compres-  
sors and condensing  
units for the refrig-  
eration industry.



## Henry V. Dick & Co. To Open New Headquarters

CHARLOTTE, N. C.—An open house celebrating the opening of the new headquarters of Henry V. Dick & Co., refrigeration supplies and equipment wholesaler, which will be located on South Tryon St. in Charlotte, is planned for March 18, reports C. W. Eskridge, president of the company.

The new modernistic building on South Tryon St. will serve as general headquarters for Henry V. Dick & Co., which operates supply house branches in several cities in the southeast. The *Charlotte Observer* is planning to publish a special section in honor of the event, it was learned here.

## Vogt, Ziebell To Head Sales at McCray--



H. B. VOGT



C. H. ZIEBELL

(Concluded from Page 1, Column 3)

He also was contact man with national companies in the perishable food field. Before that time, he was

in business for himself as a manufacturers' representative.

Ziebell has been identified with McCray for nearly 30 years. He started in the accounting department on July 12, 1920. In 1926, he joined the sales department.

In December, 1940, he was made assistant sales manager. On March 1, 1947, he became southern district sales manager. He rejoined the home office staff a year ago, in charge of wholesale accounts.

### Dealer Features Westinghouse

BEAUMONT, Tex.—Westinghouse refrigerators and other appliances will be featured by Compton-Fertitta Appliance Co., 835 Park St.

## St. Louis Area January Refrigerator Shipments Up over Previous Month

ST. LOUIS—Refrigerators were the only major appliance on which January shipments by distributors to dealers in the territory of the Union Electric Co. exceeded those of December, the utility reported recently.

A composite report from 27 distributors gave these unit volumes for January and December:

Appliances	Jan.	Dec.
Ranges	522	664
Water heaters	173	296
Refrigerators	2,715	2,476
Food freezers	169	240
Automatic washers	364	205
Conventional washers	1,176	1,514
Clothes driers	139	183
Ironers	272	673
Vacuum cleaners	731	1,078
Electric sinks	47	209
Dishwashers	24	31
Television receivers	5,126	6,024
Roasters	256	356
Coffeemakers	501	851
Electric blankets	37	184

## McCray Co. Announces Sales Meeting Series In Principal Cities

KENDALLVILLE, Ind.—McCray Refrigerator Co. has announced that a series of sales meetings are now being held in key cities for all McCray distributors, their salesmen, and their respective district sales managers attending.

The meetings began on March 10 and will continue through April 24. Conducting the conferences are R. E. Abbott, vice president in charge of sales, assisted by H. B. Vogt, sales manager, and J. E. Barker, service manager. President J. W. Hart will attend some of the meetings.

Conferences were scheduled for the following cities:

Fort Wayne, Ind.; Jackson, Mich.; Columbus, Ohio; Pittsburgh; New York City; Washington, D. C.; Columbia, S. C.; Atlanta; Tampa, Fla.; Louisville, Ky.; Chicago; Des Moines, Iowa; Kansas City, Mo.; St. Louis; New Orleans; Little Rock, Ark.; Fort Worth and Lubbock, Tex.; Los Angeles; San Francisco; Seattle; and Salt Lake City.

### Project Needs 201 Refrigerators

UTICA, N. Y.—The Municipal Housing Authority opened bids for the delivery and installation of 201 new 6-cu. ft. electric refrigerators in the Frederick Gillmore Village housing project, the low bidder being Westinghouse Electric at \$23,084.95, or a unit bid of \$114.85.

## 'Crosstop Refrigerator'



Featured in this newest Norge, Model SF-85, is a non-sweat freezer which extends across the entire width of the top. (See story on Page 1.)

## Buffalo Forge Profit For Year Is \$2,015,099

BUFFALO—The Buffalo Forge Co. and subsidiaries reported net profit for the fiscal year ended Nov. 30 of \$2,015,099, equal to \$6.02 a share, compared with \$2,132,884, or \$6.57 a share, in the preceding year.

Net sales for 1949 increased slightly to \$19,094,637 from \$19,034,094 a year earlier. Dividends paid in 1949 totaled \$4.40 a share against \$4 in 1948.

Although unfilled orders at the close of 1949 were at a lower level than at the end of 1948, "orders received during the latter part of the year and thus far in the first quarter of 1950, both domestic and foreign, have been encouraging and the present situation with respect to orders booked, but not shipped, is considered satisfactory," the annual report disclosed.

## Independent Dealer Sales For January Rise 21%

WASHINGTON, D. C.—January sales of independent household appliance dealers reporting to the Bureau of the Census were 21% higher than in the same month of 1949, the bureau's monthly retail trade report shows.

But compared with December, sales in January were down 38%.

January sales of all types of independent retail stores rose 3% from January a year ago and fell 35% from December.

## 13 Firms Ship 272,636 Refrigerators In December

### Complete Refrigerators Only

(Lacquer and Porcelain Exterior Cabinets) (Advertised Sizes)

### DECEMBER (13 Companies)

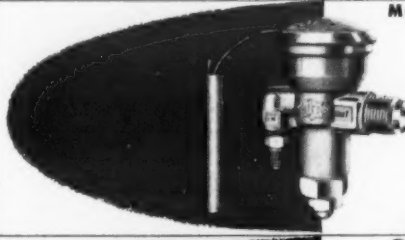
Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	31	.....	2	33
2. 4 cu. ft.	1,691	.....	298	1,989
3. 5 cu. ft.	.....	.....	.....	.....
4. 6 cu. ft.	31,985	2	4,068	36,055
5. 7 cu. ft.	49,878	1	2,505	52,384
6. 8 cu. ft.	82,765	1	4,243	87,009
7. 9 and 10 cu. ft.	84,052	.....	2,047	86,099
8. 11 and 12 cu. ft.	8,756	.....	311	9,067
9. 13 cu. ft. and up	.....	.....	.....	.....
10. Total	259,158	4	13,474	272,636

### YEAR 1949 (13-12 Companies)


Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	2,208	.....	54	2,262
2. 4 cu. ft.	25,130	.....	2,824	27,954
3. 5 cu. ft.	.....	.....	.....	.....
4. 6 cu. ft.	504,886	2	39,796	544,684
5. 7 cu. ft.	879,198	29	33,809	913,036
6. 8 cu. ft.	1,157,030	5	44,314	1,201,349
7. 9 and 10 cu. ft.	978,485	2	23,224	1,001,711
8. 11 and 12 cu. ft.	157,297	.....	4,091	161,388
9. 13 cu. ft. and up	35	.....	1	36
10. Total	3,704,269	38	148,113	3,852,420

Participating companies: Admiral Corp.; Avco Mfg. Corp.; The Coolerator Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint, Inc.; International Harvester Co.; Kelvinator Div., Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Sanitary Refrigerator Co.; Seeger Refrigerator Co. (out 1-1-49, in 11-1-49); Westinghouse Electric Corp.; Stoddard Mfg. Co. (out 5-1-49).

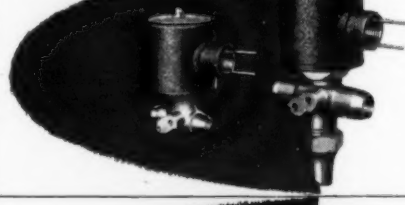
You name the problem **ALCO** has the answer—and the right valve




**MOTOR OVERLOAD PROTECTION?**  
Type 402 Thermo Valve—Up to ½ ton F-12—¼ to 1 ton Methyl Chloride. Pressure limiting construction for motor overload protection. Low or high temperature for any



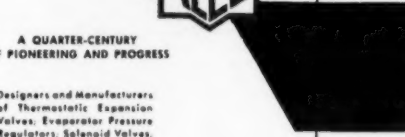
**PREVENT FREEZING, DE-HUMIDIFICATION?**  
Type 760 Evaprotol Regulator maintains evaporator pressure. Prevents freezing, icing and de-humidification. Ideal for Butter and Milk Boxes, Meat Boxes, Candy Cases, Flower Cases, Vegetable Cases and Water Coolers.



**POSITIVE TEMPERATURE CONTROL?**  
Type S1 and S2 Solenoid Valves are tight seating and are unexcelled for positive temperature control, and liquid stop service.



**ICE MAKERS?**  
Type "TK" Thermo Valve—½ to 2 tons—for Ice Makers and high capacity box and blower type fixtures.



**ALCO HAS REFRIGERATION UNDER CONTROL**

A QUARTER-CENTURY OF PIONEERING AND PROGRESS

Designers and Manufacturers of Thermostatic Expansion Valves, Evaporator Pressure Regulators, Solenoid Valves, Float Valves, Float Switches

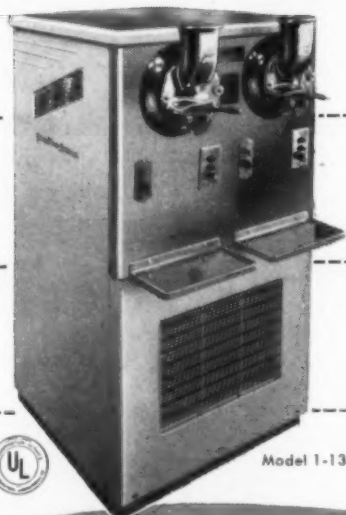
SEE YOUR ALCO WHOLESALE

4271

Any way you look at it

## SWEDEN FREEZERS

*Lead the Field*



Model 1-131

**IN PROFIT POTENTIAL**—Fountain operators find new volume and profits serving soft ice cream, frozen custards and other popular specialties from SWEDEN Speed Freezers. Their dipped ice cream food costs are cut in half, with bulk shrinkage eliminated and the requirement of less cream-weight-per-serving. Labor costs are also slashed 50% and more by SWEDEN through elimination of dipping, scraping and handling. Amazing speed of SWEDEN dispensing allows greater volume handle with less labor!

**IN DESIGN AND ENGINEERING**—From 17 years of SWEDEN leadership in the ice cream freezing dispensing field have come superior features such as automatic freezing controls for easy, consistent operation; economy-of-space design, accessibility of all parts for quick cleaning and servicing and high grade design that has earned the approval of Underwriters' Laboratory.

**IN VARIETY OF MODELS**—It's the most complete line of ice cream freezing dispensing equipment ever offered by any manufacturer. Table and floor models. Single head machines... double head machines for variety of products, or continuous production of a single product. Sizes from single head 2-quart to double head 10-quart. Batch and continuous freezers. Self-contained and remote condensing unit models. Space saving hardening-condensing cabinets... mix compartments and cabinets. There's a Model to Meet Every Need!

Yes—any way you look at it... SWEDEN Freezers lead the field. They're profitable to own... investments that pay for themselves out of extra profits. For more information, write today to:

**SWEDEN FREEZER MANUFACTURING CO.**  
DEPT. 5-1 SEATTLE 99, WASHINGTON

**SWEDEN SPEED FREEZERS**

*the*  
**FOUNTAIN FREEZER**



## Spring Is Time To Make Dust Fly, and Dealer Can Start In Own Store

CHICAGO—Spring housecleaning time is here!

In the opinion of one distributor, the average dealer can well afford to take advantage of that fact and get his own store in shape for the big appliance selling season ahead.

This is what the Harry Alter Co. here wrote to its Crosley dealers:

"In our wanderings in and out of dealer stores it is amazing how many we have seen that are unkempt, untidy, and downright dirty. The average man owning a store hustles throughout the day and is so close to his business and so used to seeing it in its present condition that he fails to realize how far he has permitted it to slip.

"Most of us know that a store should be clean, attractive and orderly, and most of us have intentions someday to clean house, but we get into a rut and get so used to a messy store that we don't even see the dirt. That is human nature.

"The first day of spring is March 21, and that is not too far off. Our suggestion to Crosley dealers is:

"First, walk across the street and look over your store exterior and the show windows with the imaginative and critical eye of a stranger.

"Then force yourself to actually feel like a stranger, open your front door and step across the threshold and stop!

"Let your eyes roam over your possessions, imagine yourself a customer and not the owner, and don't give yourself an alibi!

"If you are satisfied with what you see you have passed the acid test.

"If the place looks like hell, now, right now, is the time to clean house for spring."

## Customers Still Beat Path To Door of Retailer Who Relies on Newspaper Ads

DETROIT—Newspaper advertising alone is a sufficiently strong traffic pulling force to provide Benjamin's Appliance Store at 11024 Grand River Ave. here with satisfactory volume without using an outside sales crew, according to John S. Komara, store manager.

Komara also finds that advertising the meter plan is a fine tool to use in attracting prospects to the store—one which has worked out very satisfactorily so far.

Traffic generated through daily display and classified advertising in the metropolitan papers is keeping a crew of eight salesmen busy at this and one other neighborhood store.

The store handles a wide variety of appliance brands and television. The latter is providing the bulk of the firm's business right now, although Komara expects refrigerators to sell better this coming spring than they did last year.

"The manufacturers are giving the customer more for his money in these new models than they have in the past," Komara declared in explaining his reason for the prediction.

"We don't sell too many appliances on the meter plan," Komara said, "but advertising it brings people in."

## Paragon CHRONO-SPRAY FAIL-SAFE TIME CONTROLS for water-spray defrosting SERIES MG-3



for Locker  
Plants, Big  
Unit Coolers,  
Walk-in Boxes, Air Condi-  
tioning, Breweries, Dairies, etc.

Provides three adjustable periods: delay, water spray, and drain. "Fail safe" feature prevents evaporator fans from running during water spray cycle when unit is being defrosted.

See your jobber or write for free  
bulletins and installation data.

**Paragon ELECTRIC COMPANY**  
1622 TWELFTH STREET  
TWO RIVERS WISCONSIN  
America's Foremost exclusive  
manufacturer of Time Control  
Switches for all uses, includ-  
ing "fail-safe" for domestic  
refrigerators...only **\$9.95**

## To Live Prospects Only

## Rental of Home Freezers Jumps Sales Volume 5 Times In Year

DECATUR, Ill.—While the practice involves a lot of time and trouble and may be classified as a "gamble," renting of home freezers, particularly to suburban dwellers and farmers, has built up home freezer sales volume considerably for Central Radio Store, appliance dealership here.

Under the plan, any customer may ask for rental service on home freezers and other appliances in the store. The rate to be paid is listed in a schedule which has been posted by the management.

Rental service in connection with home freezers is limited to "actual prospects," who must demonstrate conclusively to the Central Radio Store management that they are sincerely interested in a home freezer, and that the possibility of making a purchase is strong.

"We can tell after a conversation with the usual rental applicant whether he intends to buy a home

freezer or whether he is just renting an inexpensive means of storing foods, and capitalizing on wholesale discounts," it was indicated. "Luckily, there have been very few of the latter classification in rentals to date."

Most of the families who rent home freezers, it is believed, are those who are honestly interested and actually contemplating a purchase but "want to see what the box will do" before investing the full purchase price in one.

In such instances, the store has shown a high percentage of sales per rental, inasmuch as once a family has grown accustomed to economies effected by home freezer use, the chances are that they will set up a time-payment system.

A definite spur to purchase of the box is the fact that all of the rentals paid in apply on the purchase price in the event the renter elects to buy it, it was pointed out.

Under the system, the home freezer is delivered in a company truck to the home. A day later, an economist or one of the company's salesmen calls on the homeowner, with specific instructions on how to place and wrap each food item, how to buy foods economically for use in the freezer, etc.

This tends both to accelerate sales and "insure" the freezer inasmuch as the renter is not apt to abuse the box and will come to appreciate its value, according to the Central firm.

In addition to renting home freezers, which resulted in selling five times as many during 1949 as 1948, the Decatur store rents other appliances, such as automatic water heaters, vacuum cleaners, refrigerators, sewing machines, sit-down ironers, and automatic and conventional washing machines. Prices range all the way from 50 cents a week for vacuum sweepers up to \$2 a week on sewing machines.

## G-E Brings Fair Trade Action Against Retailer

NEW YORK CITY—Charging that Bryant Sales Co., Inc., here is selling G-E clocks and irons below the established minimum retail resale price, General Electric Co. has asked the Supreme Court at New York to issue a temporary injunction restraining Bryant from such action.

An affidavit filed with the injunction petition by Hardage L. Andrews, G-E vice president, said the plaintiff "has expended and is expending large sums of money in advertising and promoting its branded appliances and has established a valuable reputation and goodwill for those appliances and for the trademark under which they are distributed and sold."

"Defendant is advertising, offering for sale, and selling at retail, General Electric clocks and irons, each of which is one of the appliances manufactured and sold by plaintiff, at prices which are less than the minimum retail resale price established by plaintiff under contracts with other retail outlets."

# Years Ahead With

# MORE

## Coolerator



**PUTS THE MOTOR ON THE  
BACK TO HOLD MORE FOOD—  
TO SAVE MORE SPACE—TO  
GIVE YOU MORE TO SELL  
ON EVERY SCORE!**

**MORE  
CAPACITY IN  
LESS SPACE**

**MORE  
SQUARE FEET  
OF SHELF AREA**

**MORE  
INTERIOR  
FLEXIBILITY**

**MORE  
KINDS OF  
FREEZING COLD**

The brilliant new Coolerator for '50 is an entirely new kind of refrigerator. Only 28" wide—less than 58" high—taking only 5.1 sq. ft. of floor space—yet it provides a full 9 3/4 cu. ft. of safe low cold refrigeration.

Coolerator's "years ahead" design not only provides the maximum in capacity with Space-Thrifty compactness, but it also assures the utmost in usable area. The 9 3/4 cu. ft. models provide a full 20 sq. ft. of shelf area.

Coolerator's spacious interior is a marvel of engineered convenience. Magic Select-O-Shelves are instantly adaptable—adjustable—to meet ever changing storage needs. The Sliding Snack Basket keeps small articles snugly packed—always visible—right at your finger tips. Full-width Crisp-O-Lator provides loads of moist cold storage.

"Freezer" Cold with temperature 'way below freezing in the 40 lb. Freezer-Chest to keep ice cream frozen firm—to store frozen foods safely—and to freeze lots of ice cubes in a jiffy. Quick Chilling Cold "Just Below Freezing" in the adjustable Chill-R-Ator to chill beverages, salads, desserts—or to store extra ice cubes.

A leader in the deluxe QUEEN—9 2/3 cu. ft. of safe cold. Four other great Coolerators range in size from 7 to 9 2/3 cu. ft. and offer exactly the right combination of features, capacity and price to give you a real competitive advantage in every segment of your market.

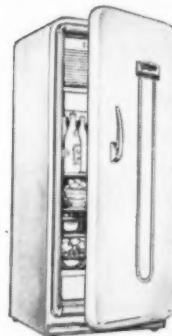
## You'll Sell MORE Make MORE With Coolerator

## NOW—A 7-HEAT PUSH-A-BUTTON AUTOMATIC ELECTRIC RANGE



**Only \$279<sup>50</sup>**

The feature every homemaker wants in her new electric range at a price that's right for modest budgets. That's the combination which makes the deluxe, Automatic Coolerator Regal the "hottest" model in the industry. New fingertip surface cooking flexibility plus a score of other novel features make the Coolerator Regal a pleasure to demonstrate—and a "Natural" to sell.



Every consumer survey indicates a constantly growing demand for big capacity Space-Saver Refrigerators. Coolerator meets the requirement exactly. Coolerator gives you the finest "Leader" and the best natural "Step-Up" in the industry. These "years ahead" Coolerators are backed with a hard-hitting national advertising program and local promotions geared for volume sales. And Coolerator's generous margins assure you a legitimate profit on every sale.

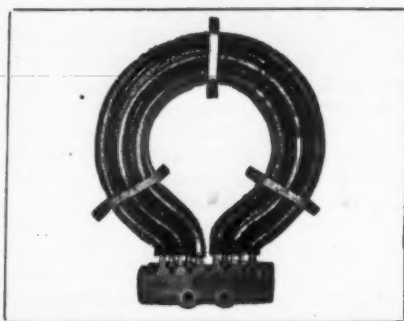
**THE COOLERATOR COMPANY**

Duluth 1, Minnesota

Chicago Offices—11-107 Merchandise Mart



## ROME-CONDENSER ★ Jointless Type ★

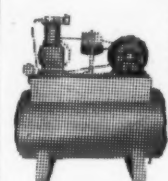


Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

**ROME-TURNEY  
RADIATOR COMPANY**  
222 CANAL ST.  
ROME, N. Y.

### New DECO B 7 Automatic Compressor

**\$42.60 less motor  
(List \$85)**



\$54.70 with 1/2 HP motor  
\$75.00 with 3/4 HP motor  
\$120 with 1 HP motor

**E. & D. CO.**

353 W. 59 St. NYC.  
CI 6-3871

# What Adequate Wiring Means to a Dealer

## 1. 'Anemic' Circuit Layout In Home Can Hurt Performance of Appliance After It's Sold

ST. LOUIS—The importance of adequately wired homes to the appliance retailer was brought out at the sixth annual adequate wiring conference here recently by J. R. Poteat, manager of the range and water heater division of the General Electric Co.

"Suppose he (the dealer) sells an appliance," Poteat illustrated. "The customer has seen his store demonstration or that on the utility floor where adequate capacity is available and she has observed snappy, adequate performance."

"But when it gets to the home, due to an anemic wiring system the performance of the product doesn't duplicate the demonstration—maybe it's slow or sluggish."

"A service call results, and out the window goes the dealer's profit. And in a percentage of cases the dealer may have to accept a return of the product."

Poteat pointed out that the electric range has always suffered under the stigma of a wiring installation which in many cases has seemed all out of proportion.

"But as you and I know," he said, "what happens is that the installation of the range requires a modernization of the entrance service with greater capacity and more adequate provision for future installations."

"If the entrance service were there in the first place, the run from the panel board to the range would be an insignificant item of cost. But with the wiring provided when the range goes in, the future direction of that home becomes electric."

"I asked a retailer in another part of the country recently how he handles the installation problem connected with a dishwasher sink."

"He told me that whenever a customer asks him if the installation cost will be high, he replies very simply that such cost will be only a modest sum. But, he adds, 'if I find it necessary to remove a radiator or re-arrange the plumbing so that the device will operate most satisfactorily, it is these items which will make up most of the cost.'"

"Why isn't this a perfectly reasonable approach to a range wiring?"

Poteat declared that electrical contractors certainly should be interested in adequate wiring.

"The adequately wired home," he stated, "has twice as many fuses and circuit breakers as the inadequately wired home, 50% more single pole switches, twice as many connection boxes, twice as many duplex convenience outlets, twice as many special outlets, and has on an average three 3 and 4-way switches against none in the inadequately wired home."

## 2. Understanding Savings Possible with Proper Wiring Is Key to Better Appliance Prospects

ST. LOUIS—"No electrical appliance can operate efficiently and render the full service for which it was designed and built unless the complete circuit from the electric generator to that appliance is entirely adequate and has no weak links in the chain," said J. D. Howard in his keynote speech at the sixth annual adequate wiring conference here recently.

Howard, who is general sales manager of the Wisconsin Power & Light Co., emphasized that "consumers must be informed so they will understand that small wires and poor facilities not only cause inconvenience and hazards, but also cost them money through higher electric bills, more repair expense, and wasted time due to inefficient operation."

He asserted, "To most people adequate wiring is a very intangible phrase which means but little. The highest order of salesmanship and sales management is essential to the successful promotion of it. It should not be placed solely in the hands of minor employees."

"Some of our experiences are almost unbelievable. In a series of wiring refresher courses we sponsored throughout our territory, it was found that 75% of the wiremen did not have a copy of the Electrical Code. We sold several hundred copies at these meetings."

"We also found that hundreds of wiring jobs were done 'by ear.' There were no plans or layouts from which to work or check. Many of our contractors are now doing their own layout work and are making working drawings."

"In the first 100 adequately wired homes certified after the Central Wisconsin Adequate Wiring Bureau was organized in 1947, the following data on averages obtains:

"(1) There were 13 branch circuits, not counting range and water heater circuits."

"(2) There were 40 convenience outlets."

"(3) There were 27 switches."

"(4) There were 27 lighting outlets."

"(5) Most all have 100 ampere service entrances."

"While the number of homes which has been certified is modest, we know that many plus benefits have resulted because the average standard of wiring installations has been raised materially."

"This is best indicated by the fact that wholesalers supplying our territory now sell considerably more #12 wire than before and #14 wire is no longer the predominant size."

"The feet of #12 wire used for domestic wiring now exceeds the feet of #14 used. The 100 ampere entrance switch has come to be generally accepted."

## 3. Use of 'Plan Service' Assures Customer That Appliance Wiring Layout Is Adequate and Safe

ST. LOUIS—How the plan service of the St. Louis Adequate Wiring Bureau works and the results it has obtained were outlined at the sixth annual adequate wiring conference.

D. E. Huey, draftsman for the St. Louis Electrical Board of Trade, explained the plan service means:

"Making a tracing of the floor plan from the builder's blueprints, spotting the outlets and switches, showing number of circuits needed, size of service conductors and main switch, and size of feeders and panels where necessary."

"From this tracing we furnish two blueprints free of charge."

"By using this plan service, we have some definite, visible, and positive selling approach to any home building electrical problem," he said.

Huey pointed out that "as soon as we receive a plan, we immediately put into action the following routine:

"The owner, builder, or architect is contacted directly to secure such information as to enable us to accurately perform our task."

"(1) Are there any construction changes in the blueprint?"

"(2) Exact location of job and report of progress."

"(3) Listing of all major appliances."

"(4) Suggestions for special features or switching arrangements."

"(5) Existing power lines and probable entrance connection."

"We always try to give three-day service," he stated, "and never hold a plan over a week unless there is some unusual arrangement. The builder only has a limited number of plans to let out for bids and so we don't want to delay his program." Huey continued. "The plans are not run across our drawing boards in an assembly-line pattern, but are rather given individual attention to details. Each architect and builder has his own particular specialties about which we gradually learn and so we try to satisfy them without deviating from our own standards to meet certification."

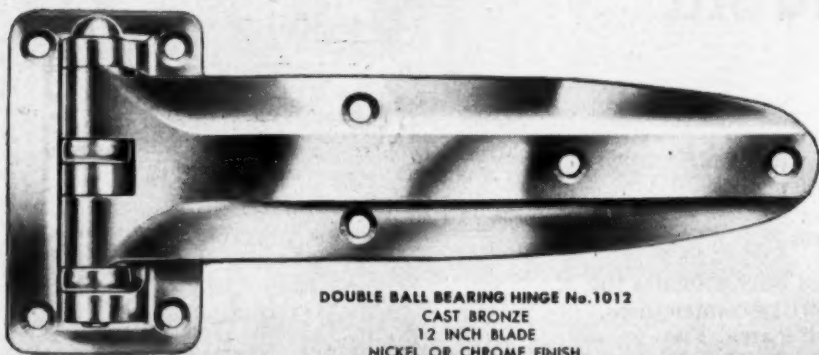
"When the drawing has been completed and the two blueprints made, we deliver the prints personally and go over them in detail so there will be no misunderstanding about our requirements for certification. It is at this point when we have our greatest selling point for adequate wiring."

Huey pointed out that "Out of 700 plans we have drawn over a three-year period, about 300 have resulted in certification. One single plan has resulted in 350 certifications, another has brought 90 and still another 80."

"Our records also reveal that 200 plans have resulted in individual separate certifications."



UNIVERSAL COOLER LOCK No. Z-325  
CAST BRONZE  
NICKEL OR CHROME FINISH  
WEIGHT—11 POUNDS



DOUBLE BALL BEARING HINGE No. 1012  
CAST BRONZE  
12 INCH BLADE  
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... ruggedly made for smooth,  
positive operation and  
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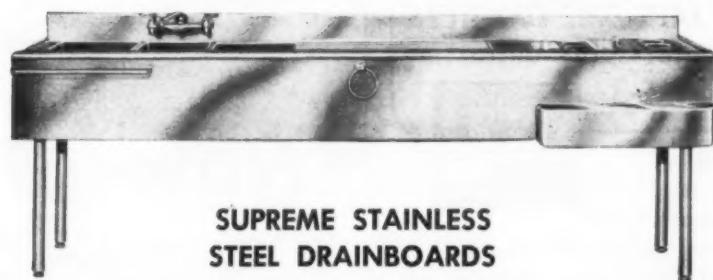
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STEEL DRAINBOARDS

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Backed by . . .

- 5-YEAR WARRANTY covering food spoilage.
- 5-YEAR WARRANTY covering sealed units.
- 1-YEAR WARRANTY on cabinet and all component parts.

Features include—

- Full color, illuminated, replaceable product pictures.
- Stainless steel top and deep apron. White "auto-body" finish.
- Slide-out, hermetically sealed compressor (easy service).

M-9-M-12 Illustrated. Capacities—9 or 12 cu. ft. Some exterior size. LENGTH—54". HEIGHT (less display)—38".



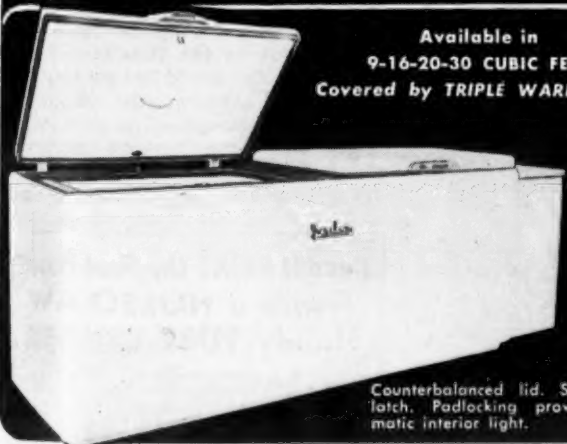
MODEL M-17  
LENGTH—76"  
HEIGHT—36"  
DEPTH—29"  
CAPACITY 17 cu. ft.

All models have ONE PIECE STAINLESS STEEL sliding doors with countersunk rollers.



MODEL M-26  
LENGTH—107 1/2". HEIGHT—36". DEPTH—29". CAPACITY—26 cu. ft.

## HOME & FARM STORAGE FREEZERS



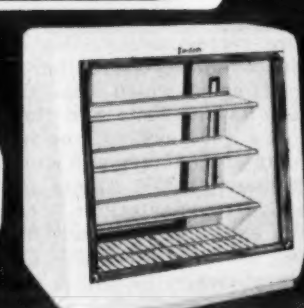
Available in 9-16-20-30 CUBIC FEET  
Covered by TRIPLE WARRANTIES

Counterbalanced lid. Spring release latch. Padlocking provisions. Automatic interior light.



Double-Duty COUNTER-TOP DISPLAY CASES

Remote or self-contained. Model CT-42 (above). LENGTH—72". HEIGHT—42". DEPTH—33".



4 Ft. and 6 Ft. FULL VISION DISPLAY CASES  
Porcelain display shelves. Triple Thermopane front. Heavy duty, moist-cold refrigeration. Model FV-4 (above).

## DISPLAY CASES



THREE DECK OPEN DISPLAY CASES  
All decks refrigerated and illuminated. Model 3D-6 (above). HEIGHT—70". LENGTH—72". WIDTH (base) 34 1/2".



6 Ft. and 8 Ft. REACH-IN DISPLAY CASES  
—with ceiling mounted blower coil, triple Thermopane sliding doors. Model RD-6 (above). LENGTH—72". HEIGHT—80". DEPTH—30".

## BEVERAGE COOLERS



—and ALL-PURPOSE REFRIGERATORS

- Heavy-duty construction.
- Dry cooling with blower coil.
- Stainless steel or baked, metallic green enamel exterior finish.
- Slide-out, hermetically sealed compressor (easy service), on self-contained models.

MODEL 40-46. LENGTH—48". DEPTH—29". HEIGHT—40 1/2". CAPACITY—12 cases of 12 oz. bottles. (Remote model—17 cases).

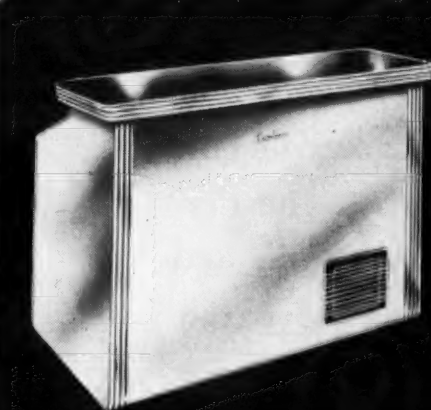


MODEL 40-63.  
LENGTH—63".  
DEPTH—29".  
HEIGHT—40 1/2".

CAPACITY—22 cases of 12 oz. bottles. (Remote model—27 cases).



MODEL 40-81. LENGTH—81". DEPTH—29". HEIGHT—40 1/2". CAPACITY—32 cases of 12 oz. bottles. (Remote model—37 cases)



BEVERAGE COOLERS WITH FACTORY ASSEMBLED, PANELYTE BAR TOP AVAILABLE IN ALL SIZES AND MODELS  
Makes a complete service bar.

## REACH-IN REFRIGERATORS

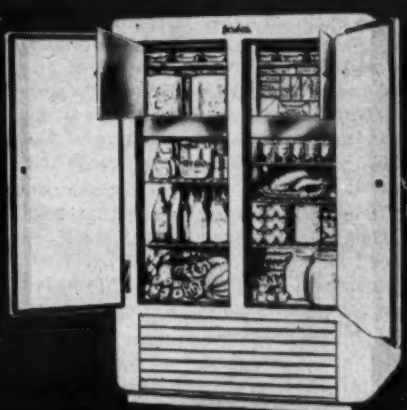
### TWO-TEMPERATURE REFRIGERATORS

in two popular sizes.

- Economical and efficient operation with ONE condensing unit.

MODEL 10/4. 10 cu. ft. normal refrigeration. 4 cu. ft. freezer locker. HEIGHT—69". LENGTH—39". DEPTH—29".

MODEL 14/6. 14 cu. ft. normal refrigeration. 6 cu. ft. freezer locker. HEIGHT—71 1/4". LENGTH 43 1/2". DEPTH—33".



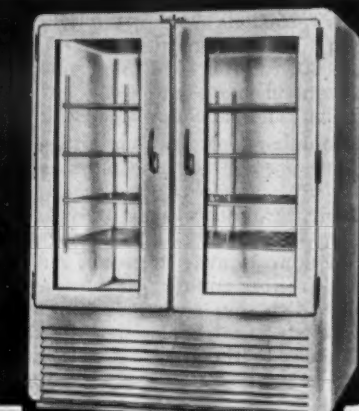
### Self-Contained 23 and 30 CU. FT. REACH-INS

5 FAST SELLING MODELS

- White "auto body" exterior.
- Stainless steel exterior.
- Equipped with blower coil.
- Equipped with ice-cube maker.
- With Thermopane glass doors and blower coil.

All welded steel construction—no wood. 4" non-settling Fibreglas insulation. Hermetic units with 5-year warranty. Every detail deluxe quality!

MODEL SC30G (Illustrated). HEIGHT—71 1/4". LENGTH—53". DEPTH (with hardware)—33".



### A Wide Choice of Models in 42 CU. FT. REACH-INS

- Stainless steel or white exteriors.
- Glass door models have triple THERMOPANE glass units.
- High humidity blower coil ceiling mounted out of the way.
- Available with heavy duty ice-cube maker.
- For remote installation. Valve attached with tubing brought to exterior of cabinet.

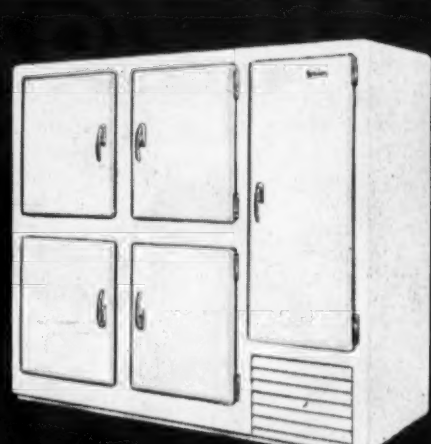
MODEL R42SCS (Illustrated). HEIGHT—71 1/4". LENGTH—60 1/2". DEPTH (including hardware)—31 1/2". Doors and interiors to fit requirements.



### Self-Contained 60 CU. FT. REACH-INS

- Stainless steel or white exteriors.
- Stainless steel floor—polished aluminum walls.
- Two high-humidity ceiling mounted blowers.
- 5-year warranty on hermetic sealed units.

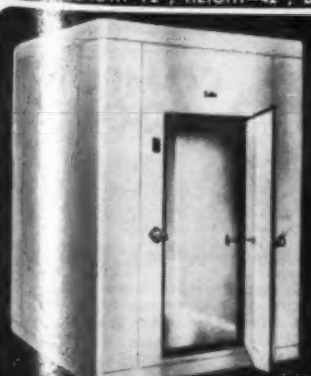
MODEL SC60JFC (Illustrated). HEIGHT—71 1/4". LENGTH—83". DEPTH (including hardware)—33". Solid or glass doors. Adjustable shelves. Meat hooks and rails as required.



## REACH-IN FREEZERS



HOME, FARM, COMMERCIAL USE  
18 Cu. ft. capacity in smallest space. Model UF-18 (above). HEIGHT—70 3/4". DEPTH—28 1/4". WIDTH—44". Backed by JORDON TRIPLE WARRANTIES.



## JORDON METAL-CLAD SECTIONAL WALK-INS

Standard, factory made sections including self-contained condensing unit panels. Normal or low temperature models in a complete range of sizes. Fast, economical erection on location. Ask for special Walk-in catalog.

## LEADERSHIP THAT ATTRACTS PROGRESSIVE DEALERS

- Mass production by skilled workers.
- Perfected engineering and refrigeration design.
- Complete selection of models for all uses.
- Competitive pricing that permits promotion.
- Immediate delivery from nation-wide distributor or warehouse stocks.
- Highest quality component parts — compressors, shelves, hardware, etc., to assure customer satisfaction.

WRITE FOR COMPLETE CATALOG AND PRICE LISTS

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AMERICA'S MODERN COMPLETE LINE  
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DEALERS: TEAR OUT THIS PAGE FOR REFERENCE OR MOUNT IT ON CARDBOARD FOR USE AS A WALL HANGER



## INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

on the national debt. It is noteworthy that the taxpayers of this country are still carrying two thirds of the debt that resulted from World War I, in addition to the deficits resulting from the 'emergency' spending of the 1930's, and all the deficits of World War II.

"It is only common sense that tells us that the Federal budget must be placed on an even keel and the frills of grants-in-aid programs eliminated if we are to escape a demoralized financial structure."

### Read and Weep

A subcommittee of the U. S. House Appropriations Committee, in considering the Department of Agriculture bill for the 1948 fiscal year, took thoughtful note of some of these trends. The subcommittee said:

"Members of the committee, like all other members of Congress, have carefully pondered the road down which agriculture shall travel. Shall it at long last be the paternalistic road along which there are subsidies and grants, coupled with more and more direction from Washington, or shall we move back, in some degree at least, to the road set forth in the act signed by Abraham Lincoln, along which one may find the benchmarks of research, the diffusion of

useful knowledge, improved market news, the necessary supports and loans, and a larger degree of reliance upon the individual farmer. As we give thought to such a problem as soil conservation and to the saving of the surface of our land from the influence of erosion, we also have the responsibility of pursuing those policies that will prevent the erosion of that rugged individual character which has made the American farmer the greatest producer of agricultural commodities in any time or generation in the world's history."

From experience, it is evident that once a spending program is started, whether under an "emergency" or not, it is extremely difficult ever to curtail it, much less eliminate it. Many state legislatures have taken cognizance of the same factors enumerated here. The General Assembly of Indiana adopted a joint resolution declaring:

"Indiana needs no guardian and intends to have none. We Hoosiers—like the people of our sister states—were fooled for quite a spell with the magicians' trick that a dollar taxed out of our pockets and sent to Washington will be bigger when it comes back to us. We find that it lost weight in its journey to Washington and back. The political brokerage of the bureaucrats has been deducted. We have decided that there is no such thing as Federal aid. We know that there is no wealth to tax that is not already within the boundaries of the 48 states."

### Frozen Foods Insure Happy Marriages

Under a heading, "The Brute Is Happy," a *Detroit News* editorialist writes:

"Metropolitan Life Insurance Co. statisticians report that more American men are married and liking it than ever before."

"Could it be, in part at least, because the homemade breakfast biscuit, the rock on which many a marriage used to be split asunder in its early stages, is now readily obtainable in frozen form at the corner grocery?"

### Frozen Toast

A tip that will sell more home freezers is passed on by Ash Chamberlain, chairman of the Bureau of Radio & Electrical Appliances' Home Freezer Committee in San Diego, Calif. He advises dealers to do it this way:

"Keep a loaf of frozen white bread in a freezer displayed on the sales floor. Have a pop-up toaster handy. When the opportunity is right, take a slice of bread out of the freezer, right before the eyes of the customer, and tap it on the toaster to show how hard it is."

"Give it to the customer and have her insert it in the toaster. It will pop out perfectly toasted—so perfectly the lady will hardly believe it!"

"That's the way to dramatize the advantage of a home freezer," advises Chairman Chamberlain. "Housekeepers who see these things with their own eyes become converts."

### Self-Examination Is Good For the Soul

Few there are who can take criticism gracefully. It strikes at our self-esteem, so we resent it and are irritated by it. Psychologist Albert Adler even rates the ego-complex

ahead of the sex complex as a human motive.

The sensible way to meet criticism and opposition is to ask oneself whether the judgment is just or the opposition reasonable, according to modern psychology. If either is the case, then we should correct our fault. Thereupon our critic or adversary is likely to become our friend and ally.

Most of us could profit by the admonition of Epictetus—"If a man is reported to have spoken ill of you, make no defense, but say 'He did not know the rest of my faults, else he would not have mentioned only these.'" That's taking criticism the right way—with humility and humor.

We are not acquainted with the woman who contributed an eleven-word statement of her religion in a national symposium on the subject, but we are willing to wager she had a host of friends. She wrote:

"My religion is never to let down anybody depending on me."

Anybody eager to make friends and influence people can begin and end their studies with that sentence. Never fail your friends. Never betray their confidence. Never talk behind their backs.

Always stand up for them in the face of criticism at any cost to yourself.

Always stand by them in trouble and difficulty.

Always stand for their temporary lapses from good spirits and good temper.

Don't expect perfection from them any more than you would want them to expect perfection from you.

Loyalty is by far the most admirable quality in human character.

Loyalty is the supreme test of friendship.

Thus endeth the sermon for today.

### Quotable Quotes

"Recently, in my opinion, there has been too much talk about the Common Man. It has been dinned into us that this is the Century of the Common Man. The idea seems to be that the Common Man has come into his own at last."

"But I have never been able to find out who this is. In fact, most Americans will get mad and fight if you try calling them common. It is a curious fact that when you get sick you want an uncommon doctor; if your car breaks down you want an uncommonly good mechanic; when we get into war we want an uncommon admiral and an uncommon general."

"I have never met a father and mother who did not want their children to grow up to be uncommon men and women. May it always be so. For the future of America rests not in mediocrity, but in the constant renewal of leadership in every phase of our national life."—HERBERT HOOVER.

"I think there is not a single department of government whose appropriations could not be reduced by 10% or more without interfering with a single essential function of the government."

"If we do not choose to reduce these Federal expenditures, the alternative is more taxes or deficits, more government competition and more regimentation. We know that private enterprise is the foundation stone upon which this nation has built its freedoms and its progress. It is a good system, and in most respects it is tough and durable. But, we know that it cannot survive excessive regimentation; it cannot survive excessive taxation; and it cannot survive excessive government competition."

"Let us remember, too, that state socialism, such as we see being incorporated in the government of England, and free private enterprise cannot live under the same roof. The only way to preserve our free enterprise system in this country is to keep it free from the contamination of state socialism."

"There is a world full of examples to prove that neither Socialist nor Communist countries could meet such obligations as our government had assumed even before the President's new proposals were submitted this year."

"Without American solvency our constitutional freedoms would disappear at home and there would be no deterrent to communism abroad. Under existing circumstances, it is no exaggeration to say there is

literally nothing on earth more important than the preservation of the fiscal integrity of the Federal Government of the United States and the financial stability of our free enterprise system."

"It is a dangerous situation indeed when we can count only on sustained inflation and higher taxes on inflated income and business to produce revenue of the magnitude required to meet vast new social expenditures at home and economic, social, and military programs abroad."

"Our friends overseas who seek American aid and comfort must realize that the only hope for their recovery and security lies in our continued solvency and therefore for the security of all, the stability of our system takes priority over any and all programs of international subsidies which would severely strain our economy."

"By the same token, those among us at home who, through membership in pressure groups and otherwise, continue to wring more and more political pap from the Federal treasury should make a place in their conscience for the fact that impairment of our financial soundness would serve the enemies of representative government far more than any lethal weapon they could devise."

"Under current conditions the security of what we have is the first security requirement."

"It would appear this best could be achieved by reducing expenditures to meet revenue; not by increasing revenue to meet additional expenditures."

"If increasing taxes or deficits to meet continuously higher expenditures is to be our course, it is obvious that neither our system nor our form of government can endure. With them will go our freedom and the hopes of all freedom loving people in the world."—SENATOR HARRY BYRD of Virginia.

"I place economy among the first and most important virtues, and public debt as the greatest of dangers to be feared. To preserve our independence, we must not let our rulers load us with perpetual debt. We must make our choice between economy and liberty, or profusion and servitude. If we run into such debts, we must be taxed in our meat and drink, in our necessities and in our comforts, in our labors and in our amusements. If we can prevent the government from wasting the labors of the people, under the pretense of caring for them, they will be happy. The same prudence, which in private life would forbid our paying our money for unexplained projects, forbids it in the disposition of public money. We are endeavoring to reduce the government to the practice of rigid economy, to avoid burdening the people and arming the Magistrate with a patronage of money, which might be used to corrupt the principles of our government."—THOMAS JEFFERSON.

## PEAK PERFORMANCE

on ALL jobs under ALL conditions is yours EVERY TIME you Buy a



*Because . . . only Sporlan can offer you Selective Charges . . . The Performance Factor that cannot be duplicated*

**C CHARGE FOR SUCTION TEMPERATURES ABOVE ZERO**

**X CHARGE FOR SUCTION TEMPERATURES BELOW ZERO**

... plus L and X charges for special applications

Mechanically the SPORLAN Type G Valve is a Model of Perfection...constantly improved but never basically changed.

★ **NEW PIN CARRIER**...The new pin carrier is designed to minimize the effect of dirt and moisture and assures perfect operation of the valve under all conditions.

★★ **TRIANGULAR PUSH RODS**...Effectively reduce friction and chance of moisture freezing rods in guides.

★★★ **STAINLESS STEEL DIAPHRAGM**...Atomic hydrogen welded in steel housing for greater strength and trouble free performance.

**EASY ACCESSIBILITY**...The Sporlan Type G Thermostatic Expansion Valve can be quickly and easily taken apart for inspection and cleaning. New reduced over-all length permits installing in much smaller space.

*Standardize on*

**SPORLAN TYPE G THERMOSTATIC EXPANSION VALVES** on all your commercial refrigeration installations and get Peak Performance on ALL jobs under ALL conditions every time you buy...not just occasionally...but every time!

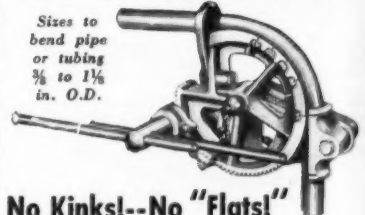
★ See Your Sporlan Wholesaler Today ★

# SPORLAN

## SPORLAN VALVE COMPANY

7525 SUSSEX AVE., ST. LOUIS 17, MISSOURI

### Bend it RIGHT the First Time! —with a HOLSCRAW Handy TUBE BENDER



No Kinks!—No "Flats!"

Thousands in use for many years. Light weight, easy to carry, handy to use on the job. Save time! Makes smooth bends in practically all grades of iron pipe, steel tube, conduit, or hard and soft copper, brass, and aluminum tubing.

Shown above, Model B4-10 for 1/2" to 1 1/2" O.D. tube, \$11.25 F.O.B. Evansville, Ind. See complete line Handy Tube Bender at your local supply house, or write

**HOLSCRAW BROS., INC.**  
422 Willow Road, Evansville 11, Ind.

### COMFORT COOLER



No ducts required  
360° circulation  
Built-in pump  
Ripple Green or White  
Model 100 C.C.  
20,750 BTU. hr. at 40° Ref. Temp.  
Write For Catalog  
**MERCHANT & EVANS CO.**  
PHILADELPHIA 46, PA.



## Neighborhood Selling Methods:

Dept. Store Finds Branches, Outside Salesmen Are Keys to Bigger Volume

SAN ANTONIO, Tex.—Acting on the theory that "if anything is good for increasing appliance sales volume, it should be added to the program" and thus adopting both retail branch stores and outside selling crews has resulted in a record major appliance sales volume for Joske's department store here.

E. L. Moon, veteran appliance merchandise manager for the store, concedes that there are about three "sure-fire" methods by which the appliance dealer located in a downtown area can guarantee a constantly increasing sales volume.

First is the post-war development of "branch stores" devoted exclusively to appliances, and placed out where they can easily "carry the appliance inventory to the customer."

Second, of longer vintage, is the effective outside sales crew, paid a worthwhile commission and subjected to constant sales contests, extra bonuses, etc., which provide incentive to "beat the bushes."

Third is the meter-selling system which has produced such meteoric sales results for many dealers around the country.

During the heavy expansion of its appliance selling program over the past few years, Joske's has embraced two of these three "basics."

While the store has not made use as yet of the meter-selling system, it has made a success of a combination branch store operation and outside selling—probably the only such large department store organization in the southwest which has actually combined the two.

"There are a lot of advantages to this setup," Moon said. "First, the branch store is out in a neighborhood area, where there is plenty of parking space, and the homeowner does not have to travel so far to look over the refrigerators, washing machines, planned kitchens, etc., which interest him.

"The same advantages accrue to the outside salesman, because he can simply whisk the housewife into his automobile, and drive her only a comparatively short distance to the store. Since the branch store has its own service organization, it guarantees quicker repairs and better maintenance."

It has been only about 18 months since Joske's opened its first "branch appliance store." Like many other department stores have done, the branch was set up immediately across the street from the main store.

Sales rose so rapidly here, even though there was little parking available and a limited sales crew, that it was decided to open more stores, out in the residential neighborhoods.

The first of these, surprisingly, was located in the city's west side. There are concentrated huge numbers of low-income, Spanish-speaking residents, who normally had represented a small part in Joske's appliance volume in the past.

However, Moon set up store personnel to incorporate a manager and outside salesmen who could speak

both English and Spanish fluently, and gave each free rein in contacting his own prospects.

Sales leaped immediately, and it took only a few months of operation here to encourage Joske's to open its second branch appliance store, the largest to date, in South San Antonio.

This, incorporating model kitchen, a model automatic laundry, a home television theater, and "live display" throughout for all appliances, is a 2-story building, in San Antonio's middle-class district.

Here, too, a sales crew and manager tailored to fit the neighborhood was installed, and sales rises were highly gratifying immediately, according to Moon.

The success of the first two branches led to installation of the third, in a better-income, exclusive suburb to the north of the Texas metropolis.

While smaller than the south side store, the smart new branch store incorporates the same advantages, and is under a manager personally

acquainted with a large percentage of the area's residents.

Many typical department store appliance operations would have been content to "stop right there." Not so Joske's.

Well aware of the value of cold canvassing, and "doorbell ringing," with a wealth of personal experience in the field, Moon went ahead simultaneously with the development of an efficient outside selling program.

Under the plan, there are 6, 7, or 8 outside salesmen who work out of each of the branch stores, in addition to a much larger crew from the downtown store.

Each of the outside salesmen is a well-trained, enthusiastic young man, paid a sliding scale of commissions which rewards him directly in proportion to his efforts.

He is furnished a constant stream of leads which are developed by Joske's heavy newspaper advertising program, tips from satisfied users, and tips from the service departments.

At every season, there are contests among all of the stores, on a pro-rata basis, which reward successful salesmen with handsome prizes for team efforts.

While generally, sales structure of each of the branches is the same, individual managers are given adequate "leeway" to develop their own campaigns, to direct their salesmen most efficiently.

One of the most outstanding factors in the sales program is the fact that all managers have been chosen from specialty salesmen in the store's employ, who have demonstrated singular selling ability, and good managerial timber.

The fact that every manager has this background insures that he will cooperate more closely with his men, and show more human understanding for the constant discouragements which crop up in this type of selling, Moon believes.

Likewise unusual, is the fact that each store has a staff of "closers" who spend full time on the floor—

chosen for their ability to greet customers, demonstrate appliances, and put over sales right in the store.

"As far as possible, we have tried to fit every salesman in the proper niche," Moon emphasized. "This means that we can keep our men on the payroll much longer, and produce a much more contented sales crew."

Each of the outside crews operates only in the territory represented by his store, with no "split commissions" or territorial arguments involved.

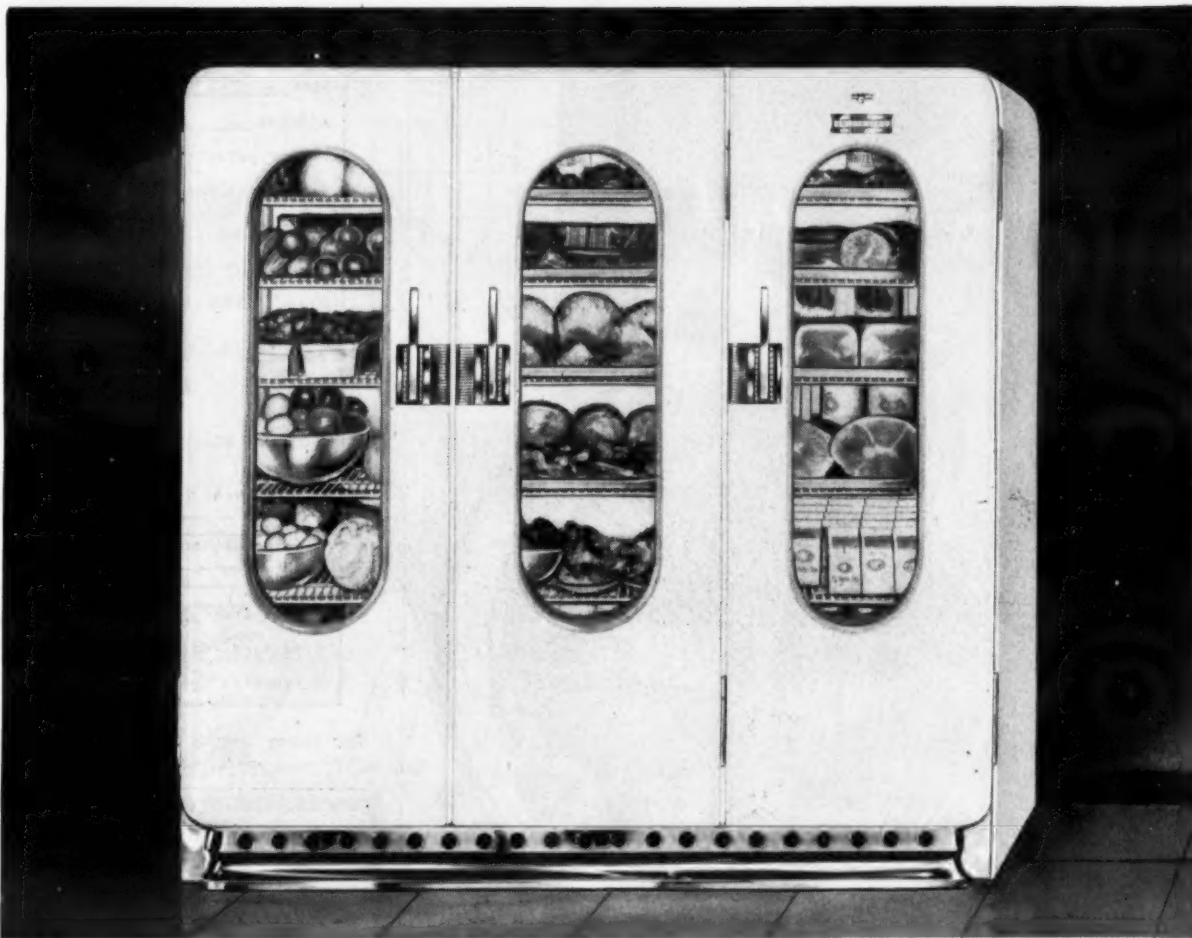
Each has been trained for, and can give authoritative allowances on trade-ins, quote time-payment plans, etc., with the surety that the store will back him up.

### Detroit Institute Names Agency

DETROIT—George H. Clark, director of the Detroit Air Conditioning Institute, announced the appointment of Denman & Betteridge, Inc., to handle the institute's advertising and public relations. Clark said this move is in line with the recent expansion of equipment and facilities necessitated by the institute's enrollment.

Wherever seeing means selling refrigerated goods—

# There's a big market for this new Frigidaire Reach-in!



Model RIL-44G Frigidaire Glass Door Reach-In (44 cu. ft. capacity.)  
Also available in 27 and 62 cu. ft. capacities.

Food stores, dairy stores, taverns, flower stores—these are only a few of the many profitable prospects for the new Frigidaire Glass Door Reach-Ins! *Wherever seeing means selling* refrigerated goods, these good-looking new reach-ins provide Frigidaire Dealers with another big sales opportunity.

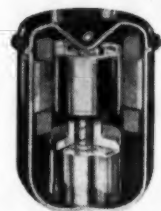
And what a powerful selling story Frigidaire Dealers have! It's a story of dramatic modern merchandising that creates impulse-buying, speeds up self-service, makes waiting on customers faster and easier. And

added to that story are all of the advantages that make Frigidaire Reach-Ins so outstanding—smart Raymond Loewy styling, sealed-steel construction, Lifetime Porcelain interiors, exclusive Flowing-Cold Cooling, and the one-and-only Meter-Miser!

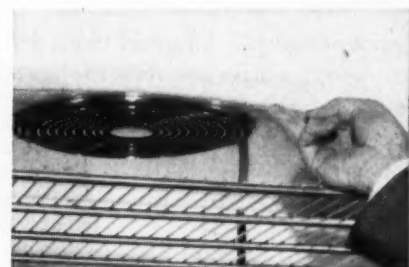
Yes, it's easy to see that Frigidaire Glass Door Reach-Ins give Frigidaire Dealers a smart new way to take advantage of a big new market. And these profit-building new models are only one of many reasons why you can't match a Frigidaire Franchise!

You can't match a

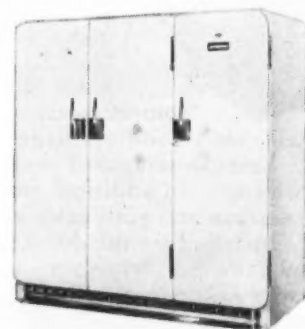
## FRIGIDAIRE Franchise



**Famous Frigidaire Meter-Miser** powers Frigidaire Reach-Ins—and what a difference it makes! The Meter-Miser has set performance records in millions of Frigidaire products, for it's the simplest refrigerating mechanism ever built—sealed in steel and oiled for life. The Meter-Miser carries its own, special 5-Year Warranty.



**Exclusive Flowing-Cold Cooling** does away with the warm spots that cause costly food losses in ordinary reach-ins. This new Frigidaire forced-air circulation system keeps everything covered with a blanket of cold—keeps all foods much fresher much longer.



**Full Line of Solid Door Models** includes capacities of 17 cu. ft., 27 cu. ft., 44 cu. ft., and 62 cu. ft. These handsome Frigidaire Reach-In Refrigerators are as far ahead of ordinary reach-ins in appearance as they are in sturdy construction and efficient performance. They're another big reason why you can't match a Frigidaire Franchise.

# Servicemen!

**FOR MAXIMUM EFFICIENCY USE CHICAGO SEALS AND VALVE PLATES**



Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.



Only Chicago valve plates have replaceable seats. Replacements for over 340 compressor models.

**CHICAGO SEAL CO.**  
332 N. MYNUE AVE. CHICAGO 12, ILL.



## Lawyers' Logic Launches, Develops Suburban Appliance Outlet As Partners Combine Proven Methods with Some Innovations



Perry Gerson, partner, studies a piece of sales literature in the middle of the store's floor display, which is just inside the front door.



One of the dealership's salesmen looks over the used appliance display, which is located in the basement.

DAYTON—A lawyer and veteran brother team, with no previous selling experience, has parlayed some sound business thinking into a thriving hardware and appliance business here.

Their firm, Miami Hardware and Appliance Co., located on the outskirts of Dayton, is ample proof that good judgment is a tremendous asset in starting a new business, particularly a postwar retail store.

Nearly four years ago, Perry Gerson returned from the war. A law student before entering the service, he felt he had lost too much time to continue his studies. His brother,

Samuel J. Gerson, a successful lawyer for 20 years, agreed with him. What to do was the question. They decided on retailing. But then the big question was what kind of business.

Samuel Gerson was and is a specialist on bankruptcy cases. He has handled hundreds during his career and he knows the whys and wherefores of business failures. So he studied even further, delving into the history of business bankruptcies since 1890. He found that hardware stores had the lowest percentage of failures and night clubs the highest. So he and Perry decided on the hardware business.

Then came the problem of locating the store. Again, they thoroughly analyzed the problem. They came to the conclusion that such a store must be different, be big, have an ample stock, be located on the outskirts of town, and then advertised.

"People seem to like bigness and crowds," says Samuel Gerson. "They also seem to be doing a lot of their shopping on the outskirts of town because of parking problems within main business districts. They like to browse and look over a complete stock. And they have more time when going into town than going out. So we built on these principles."

After a series of traffic checks, they located the store on Salem Ave., in the north Dayton district, and on a main highway. They placed the store on the right hand side of the highway going into town so it would be easy for automobiles to swing into their parking lot. And into their 10,000 sq. ft. of space they put a complete hardware stock and a few months ago, a complete appliance line. The result is a growing business that has all the earmarks of an unqualified success.

### "BEANS FROM APPLE BUTTER"

"When we started," says Samuel Gerson, "we didn't know beans from apple butter about merchandise or selling. But we did know that hardware doesn't change very much and, if it isn't sold one year, will be sold the next. So Perry and I had an old friend, who knew what to buy, go with us on a buying trip to Chicago. We came back with the right kind of merchandise and we sold it."

"The same was true when we put in appliances. We knew that many postwar appliance stores had failed. So we borrowed some of our ideas from the hardware line and put them to work on appliances. Today about half the store is devoted to appliances."

Since display is one keynote of the Gersons' selling, they placed some of the appliances immediately inside the front entrance. Here is a miniature kitchen with a refrigerator, range, sink, and cabinets. Grouped a little beyond, in compact islands, are other ranges, washers, ironers, and food freezers. And in the downstairs store is a complete line-up of refrigerators, ranges, sinks, and cabinets. A separate section displays used refrigerators taken as trade-ins.

"Naturally we learned as we went along. But we knew that people had to see the appliances before they

could be sold. We also learned that you can't judge what the public will or won't buy. And we tried to keep our advertising on an honest level.

"For instance, we advertise no money down on many appliances. We mean it. But we found that people would invariably put some money down and, in many cases, more than a minimum, if they were only asked. Also, we wanted name brand merchandise and now have Frigidaire, American Central, Youngstown, and Easy products."

For comparative novices in selling, the Gersons have learned a lot and are using tried and true methods with a few innovations thrown in.

They believe in training salesmen. Every new man goes through a four-day course before he is allowed to approach a customer. The appliance men don't sell hardware and vice-versa. Besides floor men, there are four outside salesmen.

### SURVEY TECHNIQUE

An interesting idea which the dealership uses in selling is the use of the survey technique. Using a mimeographed form, the salesmen canvass a neighborhood to find the exact status of appliances. They identify themselves as from the store but do practically no selling on the initial call. Instead, they gather information on number of persons in the household, their ages, age of home, whether remodeled or not, whether they 220-volt service, number of outlets, and make, size, and age of appliances. They also gather any comments by the consumer and the surveyor makes a summary of each call.

"We actually try to find if there is a real need for any appliance," says Samuel Gerson. "In one family, we found an 18-year-old refrigerator serving six people. That was a prime

(Concluded on next page)

# KLIXON PROTECTORS

Add an Extra Sales Point to REFRIGERATION EQUIPMENT



Typical Klixon dome-mounted Protector installation on hermetic unit

**Prevents Motor Burnouts... Reduces Servicing**

Motor burnouts in hermetic units, as well as open-type compressors, is serious. It means refrigeration is stopped and often costly food spoilage.

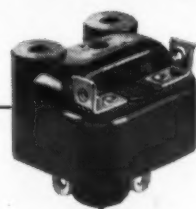
You can safeguard your units against possible burnouts by using Klixon Protectors. In addition, you add an extra sales point. Simply point out this protection and your sales efforts become easier.

Installed on the dome in hermetics, on the motor in open types, where they follow every temperature change, these foolproof, inexpensive protectors keep motors from burning out. Should motors become dangerously overheated Klixon Protectors shut the power "off." When the motor cools sufficiently, they snap the power "on" again automatically permitting the unit to maintain refrigeration.

Specify and insist on units with Klixon protectors for refrigerators, show cases, coolers, frozen food cabinets. They will reduce motor burnouts, cut repairs and replacements, build customer goodwill.

# KLIXON

SPENCER THERMOSTAT Division of Metals and Controls Corp. 2403 Forest Street, Attleboro, Mass.



KLIXON MOTOR STARTING RELAYS

Their positive action and long life eliminate starting troubles. They complete the combination with Klixon Protectors required to start and protect hermetic motors. Used and recommended by leading refrigeration manufacturers.

## MINERALLAC Perforated STRAP Versatile Hanger Iron



Safely supports hanging pipes, conduits and cables up to 500 lbs. Made of 3/4-in. 18 gauge electro-galvanized steel (also available in Everdur, copper, brass or aluminum). Precision made—perforations do not vary. 1/4-in. holes on 1/2-in. centers. Comes in 10-ft. coils and 5 and 10-ft. straight lengths. Available in other lengths also.

Send for literature and prices

Specify **MINERALLAC** HANGERS, CLIPS, STRAPS, BUSHINGS

MINERALLAC ELECTRIC COMPANY  
23 North Peoria Street  
Chicago 7, Illinois

# MINERALLAC



## Using the Prospect File

Kennel Cohoe, new salesman, checks the large and active prospect file maintained by the Miami Hardware & Appliance Co. This file is supplied, in part, from the names secured from the survey form picture on the opposite page.



## Advertising Plays Part In Store's Success

(Concluded from preceding page) prospect. When there is a definite need, the salesman makes a callback within a week or two. We've just started this survey but it appears to be very effective.

Gerson's salesmen also make extensive use of slide films. They claim they do more good in five minutes than a salesman talking for an hour. A good show, interwoven with the product presentation, can't be beat, they believe. The salesmen use portable projectors and take the shows right into the prospect's home.

On trade-ins, the Gerson's have learned to be cautious. "After all," they say, "you're really making two sales to get one." But they do handle them and use a separate display in their basement to show them.

On floor selling, the salesmen are impressed to maintain contact with prospects. Instead of asking, "What can I do for you?" the salesmen are more specific. They ask what type appliance the prospect has at home, then lead him to a display.

The idea is to prevent the prospect from replying in the negative so the salesman has no further approach. Gerson calls it "creating a continuity of interest."

Advertising has played its part in shaping the store's success. Large size advertisements are used in newspapers and the brothers have found, through experimentation, that it is better to feature only a few items than many.

"We've tried to do the things that other firms would do," explains Sam Gerson. "We know where to look for trouble before it strikes and 15 minutes with the balance sheet can ferret out any soft spots. Besides, this is fun. After listening to troubles all day, as a lawyer, and hearing only sad stories, it's a relief to see people happy. And they're certainly happy when they come into our store."

## Bauer Elected President Of N. Conn. Dealer Group

HARTFORD, Conn.—J. Wilbur Bauer has been elected president of the Northern Connecticut chapter of the National Appliance and Radio Dealers Association, succeeding Samuel K. Lavery.

Also elected were: Leonard Birnbaum, first vice president; Walter Blau, second vice president; Russell Potterson, third vice president; Marvin McGowan, secretary; William King, treasurer; Thomas Mazucchi, to act for the secretary; and Don Shively, to act for the treasurer.

## \$100,000 Fair

## 20 Charleston Retailers Display Appliances In Electrical Exposition

CHARLESTON, S. C.—More than \$100,000 worth of electrical appliances were displayed by 20 Charleston merchants during the second annual electric exposition here March 1-3, according to W. H. Barnwell, chairman of the Charleston Electric League.

"The exhibition was conducted somewhat like a county fair, with display booths stocked and manned by local stores," Barnwell stated.

The dealers participating included William S. Anderson Electric Co., Colonial Appliance & Furniture Co., Electric Supply Co., Hood Electric Co., Quattlebaum Electric Co., Parmac Electric Co., and others.

Attendance prizes given away at the exposition included appliances which ranged in price from \$250 downward. Butts Electric Co. donated a \$250 Philco refrigerator.

## Lure of a Friendly Cup of Coffee (Free) Builds Traffic at Booth's Appliance Store

BAKERSFIELD, Calif.—A potent traffic-stimulator, which has not only increased the number of people visiting the store, but which has resulted in many more refrigerator sales, is the new, free coffee bar, which has been set up by Booth's Radio & Appliance Co., at 2020 H St. here.

The coffee bar is set up at the rear of the store, occupying 8 ft. of space, and the store's regular line of small appliances is used in producing 250 cups per day.

In order to insure the public's familiarity with the offer, a series of 2-column, 8-in. newspaper advertisements have been run in the Bakersfield paper, which invites the public to drop in for a free cup of coffee, while shopping downtown.

Listed below the invitation are the names of all popular appliance lines carried by the Bakersfield store.

Copy reads "Would you like a cup of good coffee? Then visit our

unique free coffee bar, the only place in town where you can find out the type of coffee you prefer by actually tasting the brew. Park in our free parking lot, come in for a friendly cup of coffee!"

A battery of three coffeemakers, using the percolator, drip, and boiling methods are in constant use, so that the customer may test her theories as to which produces the best cup.

The result has been a steady stream of potential appliance prospects, who receive not only a free cup of coffee, with cream and sugar, but a cookie, in return for going into the store.

No attempt is made to "high pressure" any visitor.

However, since the coffee bar is located at the rear of the store, all customers pass the entire appliance selection. Leads developed from floor demonstrations have been converted into worth-while sales.

# Trying to Run a 12 Month Business on 6 Months' Profits?



Using one month's profits to offset another month's losses is getting nowhere fast. But when you stock and display the Hotpoint line, you guarantee yourself the opportunity to make every month a profit month. For the full Hotpoint line, including every major appliance for the complete electric kitchen and home laundry, provides wanted merchandise for every month of the year. That's why dealers everywhere are swinging over to the modern franchise—the full-line Hotpoint franchise.

See the local Hotpoint distributor soon. He can deal with you on the complete Hotpoint group. Begin boosting home appliance sales NOW by making the switch to HOTPOINT—the complete line that insures year 'round profits.

★ No More "Letdowns" Following Hot Selling Seasons

★ No More "Doldrums" That Eat Away Profits

★ No More "Valleys" That Reduce Profit Peaks

... But a Full Line of Products That Insures a Full Year of Profits

# Switch to Hotpoint

for **YEAR 'ROUND** Profits!

## Hotpoint INC.

(A General Electric Affiliate)

RANGES • REFRIGERATORS • DISHWASHERS • DISPOSALS

5600 West Taylor Street, Chicago 44, Illinois

WATER HEATERS • FOOD FREEZERS • AUTOMATIC WASHERS • CLOTHES DRYERS • ROTARY IRONERS • CABINETS

Instantaneous  
Draft Beer Cooler  
refrigerated faucets!

Speed-Freeze  
draft and  
bottle beverage  
coolers

Write  
REAL COOLER CORPORATION  
253 EASTON AVE., ST. LOUIS 6, MO.



## A. Wayne Merriam, Inc. Completes Reorganization

ALBANY, N. Y.—At the annual meeting of A. Wayne Merriam, Inc., here on Feb. 20 at the company's office, reorganization plans of the appliance distributorship were completed.

Newly elected officers are: William H. Squires, president; B. W. Stryker, vice president; Francis J. Greisler, secretary and treasurer.

At the meeting the following directors were elected: William H. Squires, B. W. Stryker, Francis J. Greisler, Warren J. Burns, Harold B. Horstman, and Helen M. Tassedy.

Established in 1925, the company for the past 17 years has been distributor for General Electric appliances in northeastern New York.

### New Firm Opens In Buffalo

BUFFALO—A business name has been filed in the Erie County clerk's office for the Bri-Site Hardware & Appliances, 340 William St., Buffalo, by Sebastian Puma and Sebastian Saraceno.

## FROZEN MILK Production Kinks Mostly Overcome

NEW YORK CITY—The Beatrice Foods Co. has been experimenting for over a year on the quick-freezing of concentrated milk and has now overcome most of the difficulties in its manufacture, C. H. Haskell, president, reported to stockholders at a recent meeting here.

He explained that company researchers have concentrated whole milk to one third its normal bulk for packaging in small cans such as those in which frozen orange juice is now merchandised. The consumer then adds two parts water to bring the milk back to its normal state.

He stated: "We do not know what attitude the health authorities will take toward this type of package and much work still has to be done on testing its keeping quality before it is ready for the market."

"Cost of distribution and cost of the initial milk will determine the practicality of frozen milk."

The company, which conducts a large dairy operation, is also working on the idea of reducing the number of milk deliveries per week to homes.

Haskell declared: "We think that some day milk will be delivered only twice weekly. Limited capacity of consumer refrigeration prevents that now."

"Daily delivery is a relic of the horse-and-buggy days when much of the milk was unpasteurized and therefore had very limited keeping qualities. Fresh milk today, when carried at proper temperatures, will keep three or four times longer than years ago."

Haskell told the stockholders that 16% of the company's business during the fiscal year ending Feb. 28, was in frozen foods, cold storage, and specialty foods and services. He noted that sales of frozen foods showed an increase during the year.

### New La. A & P Air Conditioned

NEW ORLEANS—Fully air conditioned, the new A & P Super Market, Paris Ave. and Mirabeau, held its formal opening recently.

## Maintenance Reduced to Minimum



LEFT: Coldmobile's new self-contained truck refrigeration unit, which weighs only 325 lbs. Because no auxiliary gasoline engine is needed, maintenance is reduced to a minimum.

### C-H Opens Dayton Sales Office

MILWAUKEE—Opening of a sales office at 410 West First St., Dayton, is announced by Cutler-Hammer, Inc., pioneer electrical manufacturer, here.

P. L. Erickson, widely known C-H sales representative in this area, will manage the office as a branch of the company's Cincinnati district sales office.

### Coldmobile Truck Unit Weights Only 325 Lbs.

DETROIT—Rated nominally at 1 ton, a new self-contained truck refrigeration unit weighing but 325 lbs. has been introduced by Coldmobile Co. here, announces Henry Kirkpatrick, president.

The unit is designed to permit easy installation through a rectangular opening in the forward wall of the truck body, it is claimed, the unit being held in place with four mounting bolts. The evaporator section extends into the truck body interior. Powered by the truck engine, the unit is fully charged at the factory. No refrigeration skill is needed to make the installation, according to Coldmobile.

The unit has sufficient capacity to handle meats, dairy products, produce, etc., in truck bodies of from 10 to 16 ft. in length. Thermostatic control and automatic defrost are also features of this design.

Designated as model L, the complete unit has a list price of \$850, f.o.b. Detroit.

Because no auxiliary gasoline engine is employed in the design, maintenance problems are reduced to a minimum, the company says.

### Hedeman Catalog Covers Drink Dispenser Parts

GREAT NECK, N. Y.—A new catalog that is said to combine the features of an instructional guide and a complete parts manual has been issued by Hedeman Products, Inc., here. It is entitled "Dispensing Equipment Handbook for the Beverage Industry."

Contents of the manual include equipment and information of value to any industry concerned with the flow and control of liquids, air, and gases under high and low pressures, the company stated.

A feature of the catalog is that the equipment sections are illustrated to show a complete assembly and its component parts together. In some cases, the method of assembly is also illustrated.

One section is devoted to Koroseal tubing where made-up lengths in both black and translucent hose with all standard fittings are described and illustrated.

Copies of the catalog are available upon request to the company here.

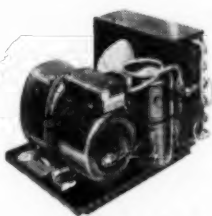
### R. D. Spencer Named Asst. Manager of 'Twindow' Sales

PITTSBURGH—Roger D. Spencer has been named assistant manager of "Twindow" sales for Pittsburgh Plate Glass Co., according to Donald C. Burnham, vice president.

Spencer has been associated with the company since 1944 and with Twindow sales during the past three years. He joined the firm as a member of the product development department.

Constructed of two or more pieces of plate glass encased in a stainless steel channel, Twindows essentially are windows with built-in insulation.

# Profit Package FOR YOU!



When you need a refrigeration compressor, check the thrifty '50 Supermetec. Get the profit-saving advantages of a Servel that costs less to maintain... enjoy the "insured" performance offered with the Servel Supermetec

#### Five-Year Protection Plan.

You neither have to guess nor gamble, because Servel's new warranty plan provides real protection for you and your customers against premature compressor failures... assures you that your refrigeration equipment will be kept "on the job" when it's needed most.

#### Note these Supermetec advantages:

**TROUBLE-FREE SEALED DESIGN.** Supermetec compressors are factory lubricated... require no manual oiling. Direct connected motor-compressor eliminates troublesome belts and pulleys, cuts maintenance costs. Permanently sealed steel housing protects moving parts against dust

or moisture, and loss of refrigerant. High torque refrigerant-cooled motors start easily, provide quiet, smooth performance.

**SUPERMETICS SAVE SPACE.** They fit right into any fixture, or save valuable floor space. Special rust-resistant finish protects power unit, and provides long-lasting new appearance.

**5 YEARS OF PROTECTION.** All Supermetec models of 1/4, 1/2, 3/4 and 1 h.p. are offered with a Five-Year Protection Plan. Service costs under this plan can only be for labor involved in exchange of defective parts and possible replacement of small parts subject to ordinary wear and usage. Customer receives a warranty certificate. Parts can be quickly obtained through a conveniently located Servel parts depot.

Phone or write for all the facts on Servel Supermetec... the 1950 "profit package" with the Five-Year Protection plan.

# Servel SUPERMETEC

models for every electric refrigeration  
and air conditioning requirement... 1/4 to 5 H.P.

Servel, Inc.  
Electric Refrigeration Division, Dept. A-3  
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Name (personal) .....

Title .....

Company .....

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OUR SECRET IS too good  
TO KEEP



WATCH for our ad  
in the next issue of  
Air Conditioning & Refrigeration News  
THE PUNXSUTAWNEY COMPANY





The three sections of self-serve meat cases are arranged in U-shape to speed flow of store traffic.

## Switching to Pre-Packaged Meats Enables Supermarket To Push Sale of Slow-Moving Cuts by Displaying Near Popular Items

WASHINGTON, D. C.—By instituting a refrigerated self-service meat department with 77 ft. of cases, River Terrace Super Market here immediately upped its sales more than 50% and the installation has attracted the interest of other large grocery retailers in this area who are planning similar improvements.

"We have 10 self-serve units in three major divisions," said Samuel

J. Levin, supervisor of the meat department, "the whole of which is arranged in a U-shape, thus permitting the customer to make the rounds in an enclosed section where 420 items are within handy reach.

"The first self-serve section is used for cheeses, luncheon meats, packaged meats such as bacon, hamburger, etc. Second is a dairy products section and the third is for sea foods, chicken, pork, beef, and lamb.

"Customers readily took to the idea of obtaining ready-served, cellophane-packaged meats displayed in neat refrigerated cases. Instead of becoming irritated by the lengthy waits while the few available butchers served each one individually, dressed their poultry for them after selection, or cut the particular piece they wanted, they can now make their own selection quickly and be sure they're getting what they want.

"Furthermore, they know how much it will cost them before they buy as each parcel is price-tagged.

"From the dollars and cents standpoint, the expenditure for refrigerated display self-serve meat cases

soon repaid itself through the boost in volume.

"It's true that we still need butchers to dress the poultry or cut the meat, but whereas we had four journeymen meat cutters we now have two with more business.

"The rest of the staff consists of two fish and poultry men, the 10 girl wrappers, two hostesses, and one department manager. Our labor turnover has dropped considerably since the men know what they are hired for, only to cut meat.

"Our self-serve has also worked to advantage in the selling of some of the less salable products. Some parts of the carcass have never proven too salable under the old merchandising methods because the customers were not too familiar with them or their uses. Now, seeing them on display, they try them or inquire about them. And the slow items are moving at our market," stated Levin.

"For instance," he continued, "most

customers think of beef as being the best meat. So when we want to push the sale of lamb stew, for example, we place it next to the steaks. The customer can see that the lamb looks just as tempting and the price is more than the determining factor.

"I believe refrigerated self-service display cases while not performing miracles for the average groceryman, nevertheless do provide him with an opportunity to streamline and specialize the operations of a meat market and reduce the pressures and aggravations that exist in most service markets," said Levin.

Satisfied with his installation, Levin made plans to put in refrigerated cases wherever possible in his store. His next move was to order two self-serve frozen food display cases to merchandise quick frozen sea foods.

"Imagine, no more fish cleaning, just sales from refrigerated display cases," beamed Levin.

## 1st A & P Self-Service Meat Dept. In Utica Uses 80 Ft. of Cases

UTICA, N. Y.—Eighty feet of refrigerated cases are employed in the newly-established self-service meat and fish department in the Atlantic & Pacific supermarket at 1501 Genesee St.

Aimed at speeding shopping practices, the refrigerated cases are the first installation of their kind by the A&P in this area. Thirty-two employees service the department.

Most of them are meat cutters who prepare the meat and fish, after which it is weighed and packaged by trained girls. It is wrapped in a specially-made cellophane.

Three employees are stationed on platforms in the area between the refrigerated cases and the packaging rooms to service the cases. Two inter-communications systems enable special orders to be filled. In the fish department, the species are filed in advance.

New equipment has been installed for the self-service department and everything is within reach of customers. The cases, with air constantly circulating through them, are maintained at 30° F. A case for frozen fish is operated at a lower temperature. The cases are made of stainless steel and porcelain.

George Kautzman, manager of the store, said an average of 12,000 persons shop in this market weekly. The meat counter has been crowded on weekends and it is believed the self-service operation will eliminate this congestion and speed up service.

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UNITS • PARTS • TOOLS • SUPPLIES

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Save time and money.  
AIRO Mail Service is  
prompt—dependable.

Write for catalog 49A  
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## THE FIRST AND ONLY STANDARD MODEL PASS-THRU REFRIGERATOR

No longer need you pay custom prices for pass-through refrigerated cabinets!

Puffer-Hubbard, pioneer in the commercial refrigeration field, takes great pleasure in announcing another FIRST . . . the standard model P-H Pass-Thru Cabinet . . . in 42, 65 and 90 Cu. Ft. sizes — at mass production prices!

The new P-H Pass-Thrus incorporate all of the outstanding features of the famous P-H Reach-in Cabinets including the patented "Grad-U-Matic" Cooling System . . . Most parts are interchangeable for fast, low cost servicing. Available in All-Porcelain or Stainless Steel finish. Why not modernize your set-up with these new labor-saving refrigerated cabinets?

REACH-IN CABINETS  
DAIRY-DELICATESSEN  
CASES  
DISPLAY CASES

IT'S A HOT  
NUMBER!  
FOR FULL DETAILS  
WRITE TODAY

DRY BEVERAGE  
COOLERS  
SLO-DOUGH CABINETS  
FLORIST CABINETS



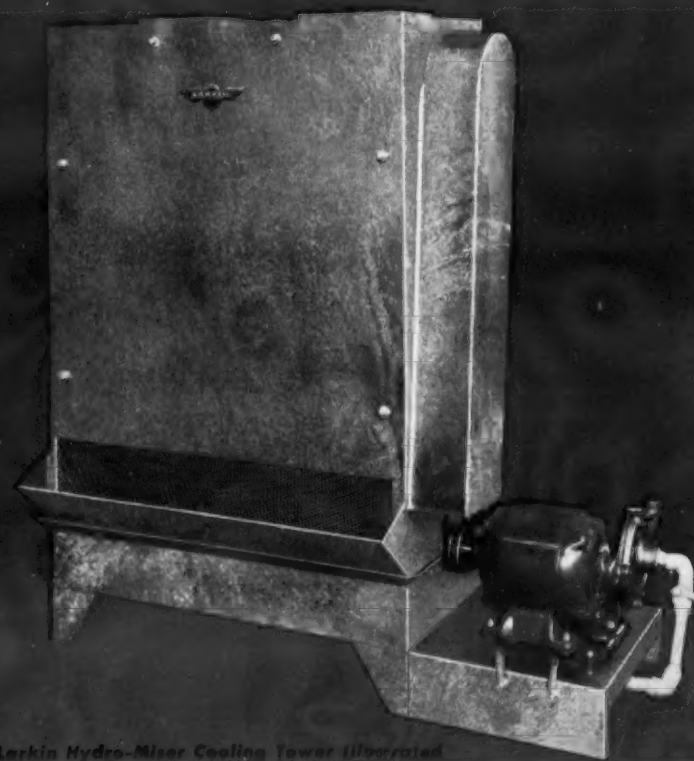
**PUFFER-HUBBARD MFG. CO.**  
GRAND HAVEN, MICHIGAN



## Hot-Dip Galvanized AFTER FABRICATION

Protected inside and out — including fans, scrolls, panels and frames — against rust and corrosion. For extra protection, acid-resistant mastic paint is applied to entire inside after galvanizing.

**LARKIN  
HYDRO-MISER  
COOLING TOWER**  
  
AND THE  
**LARKIN  
EVAPORATIVE  
CONDENSER**



## Features To Tickle the Serviceman's Fancy

In adding these new features to BOTH the Larkin Hydro-Miser Cooling Tower and the Larkin Evaporative Condenser, we kept the serviceman in mind, as you will see:

• One-piece grill, splash guard and panel on 3, 5 and 7½ ton models • No screws or bolts on panels; Larkin latches have replaced them • Flange-type, self-aligning graphited bronze bearings on outside (exterior oil cup provided where center bearings are required) • Easy, simplified installation; minimum piping

• Double ball bearing pumps and single-drive, heavy-duty motors  
And on the Larkin Hydro-Miser Cooling Tower —

• Eliminator section slides out for easy cleaning • Wetted surface assembly also easily removable • Large, orifice-type bronze spray nozzles easily removed for cleaning.

For complete details and latest prices on these highly efficient units that save up to 95% on water consumption, see your wholesaler or write us today.

**LARKIN**



**COILS**

519 MEMORIAL DRIVE, S.E.  
ATLANTA, GEORGIA

ORIGINATORS OF  
THE CROSS-FIN COIL



**ASK FOR**



**MORE DRYER FOR YOUR MONEY**

*Only Six Models  
fit Everywhere*

**AGAIN IN '50  
KEROTEST HAS THE PRODUCTS**

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**KEROTEST MANUFACTURING COMPANY**  
PITTSBURGH 22, PENNSYLVANIA

OFFICES AND WAREHOUSES: New York City Chicago Los Angeles San Francisco  
Houston Dallas Tulsa Odessa, Texas Richmond Atlanta Toledo  
St. Louis Charleston, W. Va.

### Southern Distributor Observes 15th Birthday

ORLANDO, Fla.—One of central Florida's largest distributors of air conditioning equipment, H. A. Daugherty & Co., 2320 E. Robinson Ave., observed its 15th anniversary recently.

This firm is distributor for Chrysler Airtemp air conditioning and heating systems with dealers in Seminole, Brevard, Lake, Orange, Osceola, Sumter, Volusia, Marion, and Alachua counties.

H. A. Daugherty, president of the company, first entered business here for himself in February, 1935, after spending 10 years in the electrical field. The company was first located at Main St. and Central Ave., but moved to 210 N. Orange Ave.

Four years ago, two spacious buildings were completed at the Robinson Ave. address. The main building is 50 by 112 ft., and contains more than 10,000 sq. ft., used largely for display space and offices.

An adjoining building, almost as large, houses the service and repair shops where metal ducts and other air conditioning needs are made by Daugherty metal workers.

In addition to Chrysler Airtemp air conditioning and heating units, the firm is dealer for Gibson appliances.

### Tennessee Bank Contract Let

HALLS, Tenn. — Contracts have been let for the construction of a new building to house the Bank of Halls, to cost in the neighborhood of \$75,000. Air-Temp, Inc., of Memphis, was the successful bidder for the air conditioning contract.

### Expert Tells How Butcher Working 36 Hrs. Grosses \$1,100 Weekly with 11-Ft. Case

*But He Needs 'Finesse, Desire To Do Outstanding Job'*

TOLEDO — A detailed outline of how one man working 36 hours per week and utilizing one 11-ft. open-type self-service display case can gross \$1,100 or more per week on self-service meats was offered recently by Jack W. Dickie, self-service meat consultant here.

Dickie declared: "I have set up several of these operations throughout the country and they have all turned out well. The operator must have the finesse and the desire to do an outstanding job to be successful. He must be more than just another butcher."

#### QUANTITIES OF MEAT NEEDED

According to Dickie's outline, such an operation would require 1,985 lbs. of meat and cheese items per week. Here is the list:

1½ beef	400-450 lbs. average
6 lambs	38-42 lbs. average
3 veal	100-120 lbs. average
8 pork loins	10-12 lbs. average
12 Boston butts	5-7 lbs. average
12 fresh	
picnic hams	6-8 lbs. average
6 fresh hams	12-14 lbs. average
25 lbs. spare ribs	2 lbs. average
6 loaves luncheon	
meat (2 bologna)	30 lbs.
6 loaves American cheese	30 lbs.
1 wheel mild cheddar	20 lbs.
1 wheel medium cheddar	20 lbs.
1 wheel sharp cheddar	20 lbs.
1 piece Swiss cheese	20 lbs.
24 fresh fryers (dry picked)	60 lbs.
24 fresh hens (dry picked)	85 lbs.
Weiners and misc. sausage	100 lbs.

Dickie advises the butcher to break all carcasses of meat into wholesale cuts on arrival so that all cuts of each kind of meat will be available at once when needed. The special break for self-service should be used.

Cutting on roasts, chops, steaks, and rough cuts should be straight and uniform. For rough cuts he suggests using knife or saw, not the cleaver.

Luncheon meats and cheeses should be stacked carefully in ½ lbs. Small slices should not be put in regular packages but packed separately as end cuts. For bulk cheese, three or four wedges weighing about ¾ lb. each should be sufficient to take care of that demand.

Half of the poultry should be eviscerated, disjointed with a knife and not the cleaver. The other half should be New York dressed—head and feet on, entrails in.

Weiners should be packaged by the pound, with only a few in ½-lb. packages. Sausages should usually be wrapped in ½-lb. or ¾-lb. packages.

Dickie pointed out that meats should be cut to fit a standard sized backing. He noted that there are 13 sizes of these boards to take care of the various cuts. This will allow the items to be contour wrapped showing no excess backing or film and will require the least amount of packaging materials.

Eighty per cent of the labels can be placed in the right-hand corner approximately ½ in. down from the top and ½ in. in from the right-hand side. The remaining 20% must be individually placed according to the cutting and display methods

used, he said.

Display cases should be well filled and complete and items stacked in it in a definite manner and pattern.

Dickie offered this six-day production schedule for a one-man operation:

#### WEEK'S WORK SCHEDULE

Monday: Morning—boiling beef, short ribs, stews, ground meats, steaks, and chops. Afternoon—steaks, chops, and roasts.

Tuesday: Morning—resume with fresh meats. Should have all fresh meats in the case in sufficient quantity to present a well filled appearance by Tuesday noon. Afternoon—luncheon meats, sausage items, cheese, and smoked meats. These items should now be in sufficient supply for the remainder of the week.

Wednesday: Morning — package enough fresh meat for the day. Balance of the day package poultry and fish for the rest of the week.

Thursday: Add necessary merchandise to the case for the day's business. Package steaks and chops so that these items are in sufficient quantity for the balance of the week.

Friday: Ground meats, roasts, and a few short items.

Saturday: Ground meats, roasts, and a few short items. Stop production by 3 o'clock on Saturday afternoon and sell out what merchandise you have in the cases unless you operate on Sundays. Then you would produce the maximum amount on Saturday so that you will have sufficient merchandise for the extra day.

### Wanted Surplus

REFRIGERATION UNITS or  
PARTS  
ANY QUANTITY, ANY SIZE,  
NEW

**NORTHLAND REFRIG.**

1742 Wabansia  
Chicago 22, Ill.

**OUR SECRET IS too good  
TO KEEP**



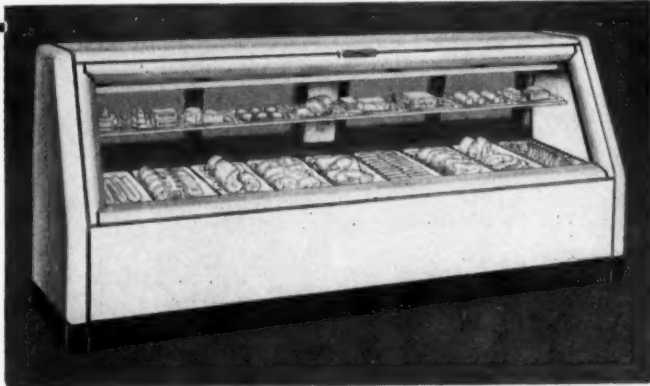
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**THE PUNXSUTAWNEY COMPANY**

## Pinnacle COMMERCIAL REFRIGERATORS

*HAVE More "Eye" and "Buy" Appeal*

**ASSURE LONG, DEPENDABLE SERVICE FOR YOUR CUSTOMERS . . .  
PROFITABLE BUSINESS FOR YOU!**

**YOU, TOO, CAN MAKE EXCEPTIONALLY BIG PROFITS. . . GIVE CUSTOMERS WHAT THEY WANT IN DESIGN AND CONSTRUCTION AND AT COMPETITIVE PRICES! SELL AMERICA'S COMPLETE LINE OF COMMERCIAL REFRIGERATORS!**



- DOUBLE DUTY DISPLAY CASES
- DAIRY, BEVERAGE, VEGETABLE REFRIGERATORS
- DELICATESSEN CASES
- SINGLE DUTY DISPLAY CASES
- FULL VISION DISPLAYS
- REACH-IN REFRIGERATORS
- MEAT, POULTRY, FISH CASES



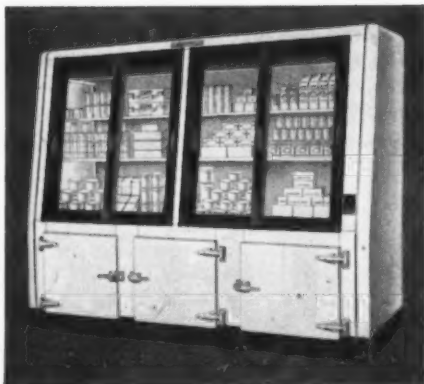
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**HARRY ALTER'S  
DEPENDABOOK**

No. 152  
**SPRING  
AND  
SUMMER  
EDITION**

for the latest edition of the DEPENDABOOK No. 152... Lots of new items. Lots of bargains... some 60% below standard prices!! Depend on the DEPENDABOOK. Save money.

"SERVICE doesn't falter when it comes from HARRY ALTER"

**THE HARRY ALTER co.**  
1728 S. Michigan Ave., Chicago 16, Ill. 134 Lafayette St., New York 13, N.Y.

**BARGAINS in  
REFRIGERATION  
PARTS**

WRITE—On your Letterhead

for the latest edition of the DEPENDABOOK No. 152... Lots of new items. Lots of bargains... some 60% below standard prices!! Depend on the DEPENDABOOK. Save money.

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## Savings Sell Freezers

'Club Plan' Permitting Big-Discount Purchases of Frozen Foods Helps Convince Freezer Prospects

LOS ANGELES—Where home freezers a year ago were the proverbial "drug on the market" at Rich's Appliance Store here, a "Frozen Foods Club" which Dealer J. W. Rich developed in 1949 has transformed them into one of his hottest selling items.

Rich, a Hotpoint dealer, as a result of the idea has sold as much as \$18,000 in home freezers in a 35-day period.

Back in early 1949, when home freezers were merely gathering dust in the store, Rich hit upon the idea of creating a Frozen Foods Club through which customers could buy all of their frozen foods at the store at a sharp discount. Object was to indicate immediately how much savings would be possible through owning a home freezer.

"We had already been harping on the economies possible with home freezers, distributing literature, and chiming in with public utility drives on home freezers," Rich indicated. "However, none of these ideas were actually taking effect—because the customer could not actually see the dollars-and-cents savings."

Therefore, early in the year, Rich contracted with several suppliers for complete lines of frozen foods and converted nine home freezers into actual "selling units" on the sales floor.

He arranged to buy only nationally-known frozen foods at such low prices that the store could sell them at cost or slightly above. Thus the store developed for itself, a practical, everyday source of home freezer prospects, which has proven unbelievably successful.

With the first stock of frozen foods in, Rich sent all former customers of the store a card which invited them to come in, and pick up a free package of frozen food, and learn about the Frozen Foods Club.

Curious prospects drawn in by the card were told that they could become members of the Frozen Foods Club by paying \$1 for an entrance fee and could thereafter buy all frozen foods at cost or only slightly above.

More than 450 persons have responded to date, each of whom received a printed "club member" card, with a number, customer's signature, the dealer's signature, etc.

"We have had to limit distribution of the cards due to the fact that we can carry only so much frozen food, and we do not want to disappoint any of our actual prospects," the dealer said.

"In other words, we do not sell frozen foods to the general public—each member must be an actual home freezer prospect."

Naturally, a lot of the people who sign up for the club do not consider themselves home freezer prospects—but a few weeks or months of buying frozen foods through their club memberships, quickly converts them.

As the housewife makes trip after trip to the store, in suburban Ma Vista, she quickly finds that she is saving large amounts of money on each purchase, and through overbuying that she does not have sufficient refrigerated space at home in which to keep the stock.

"The process is almost entirely automatic," Rich grinned. "On some occasions, the housewife may have to pass up purchasing large quantities of a particular food item with a big saving involved, merely because she has no refrigerated storage space at home."

"This does not have to happen too often before the housewife realizes that a home freezer will actually pay for itself—and it doesn't require high-pressure salesmanship to get her to sign on the dotted line."

Consequently, Rich's Appliance Store now presents an unusual picture for an appliance outlet. Refrigerated delivery vans pull up to the store several times a day, discharging consignments of frozen foods, which go into the nine home freezers scattered around the floor.

Shopping housewives, arms loaded down with packages, many of them wearing aprons, give the store a "grocery-store atmosphere."

Rich insists that no customer serve herself. Instead she must ask a salesman to get the frozen foods which she orders from a large list.

The reason for this is simple, according to Rich. In serving the customer, the salesman gets an opportunity to "tell the story of the home freezer" and, incidentally, to sell other major appliances along with it.

Some of the Frozen Foods Club members have bought two or three major appliances from the store, and there are few on the list who will not buy at least two, Rich believes.

## James Petty Joins Sales Staff of Akron Wholesaler

AKRON, Ohio—The Davey Sales Co., refrigeration wholesaler here has announced the addition of James Petty to its sales staff. Petty will serve as sales and application engineer.

Prior to joining Davey Sales Co., Petty was with the General Electric Co., air conditioning department, where he worked as a design engineer in the refrigeration machine division.

He was graduated from Purdue university in 1943 and served three years with the Navy in the Pacific, as an engineering officer.

## Dealer Clears Out Floor Models by Auctioning Them Off

ELMIRA, N. Y.—An auction sale was employed by Haesloop's appliance store, 2091 Upper Lake St. here, to dispose of floor models and other units which the store wanted to clear.

Residents of the Elmira area were invited through a large newspaper advertisement to make their bid for the offered appliances, which included ranges and refrigerators.

Here were the instructions: "1. All appliances can be inspected at Haesloop's showroom before the bid is made."

"2. Submit sealed bid with name, address, and amount bid."

"3. Haesloop's will notify you if your bid is accepted."

"4. Haesloop's will deliver the appliance to you at no extra charge."

"5. No cash necessary. Haesloop's convenient terms apply during this sale, if you desire."

"6. Haesloop's reserve the right to refuse or reject any or all bids."

## More Data on Instalment Sales Seen If Bill Passes

RICHMOND, Va.—Full disclosure of terms in all instalment sales contracts would be required by a bill passed by the Virginia Senate and sent to the House.

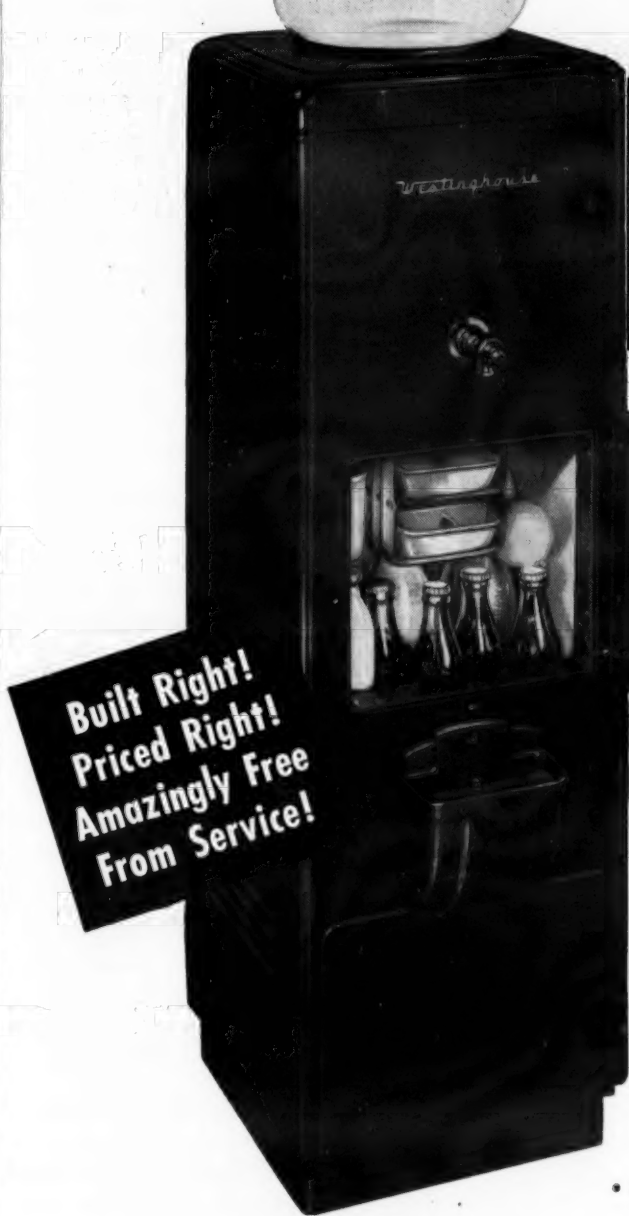
Sponsored by Sen. Major M. Hillard of Portsmouth, the measure would require instalment sellers of merchandise to furnish the buyer at the time of sale with a statement of the cash price, the unpaid balance less down payment, the cost of any insurance, the amount of the finance charge, the time balance owed, and the number of instalments necessary to pay it out.

An unsuccessful attempt to exempt automobile dealers from terms of the bill was made prior to State Senate passage.

## Taylor Handles Crosley Line

NEW ALBANY, Miss.—Taylor Electric Co. has recently been named dealer for Crosley appliances. Chester Taylor is the owner.

# SELL THE LEADER...SELL WESTINGHOUSE!



*New!*  
**COMPARTMENT-TYPE COOLERS**  
**3-TEMP.\*. WITH Magi-Trol\***  
(CONTROL)

\*Trade Mark



**POURS** ... Accommodates a five-gallon bottle. Cools adequate water for 30 office workers. Has all the other features of the regular Westinghouse Bottle Cooler ... PLUS storage and freezing.



**STORES** ... Keeps 29 beverage or 40 half-pint milk bottles ice cold! You'll find prospects everywhere: private homes, hospitals, small biological laboratories and scores of other places.



**FREEZES** ... And keeps 3½ pounds or 28 ice cubes ready for instant use! Freezer unit with shelf and trays removed, is large enough to store 3 pints of ice cream.

... of course, it's Electric

There's a big market for this versatile and convenient 3-Way Westinghouse Cooler ... available in either a bottle cooler (as illustrated) or a pressure cooler. Compactly designed, both models pour, store and freeze in less space than normally occupied by conventional coolers!

The exclusive 3-Temp with Magi-Trol insures three different temperatures: water at 50°F, a spacious ice cube and freezer compartment at below freezing temperature, and a roomy refrigerated storage space at 35-38°F. The Magi-Trol automatically responds to refrigeration requirements for each function—independently. You'll find these new Westinghouse Coolers will be tops for quick and easy sales.

**WESTINGHOUSE ELECTRIC CORPORATION**  
Appliance Division • Springfield 2, Mass.

**YOU CAN BE SURE...IF IT'S Westinghouse**

For further information call your Westinghouse Distributor or mail this coupon to Westinghouse Electric Corporation, Springfield 2, Mass.

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_

3ACRN

## MOTOR-BASE ADAPTERS

A combination hard to beat: a new motor and a set of motor adapters to make it fit.



½ to ½ hp.—101-D  
½ to 1 hp.—102-C  
1 to 3 hp.—103-C

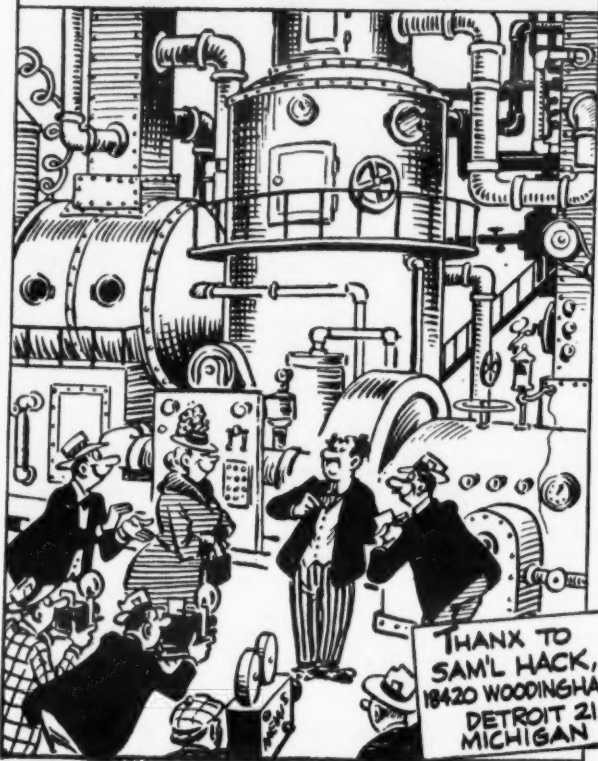
**SERVICEMEN SEE YOUR JOBBER**

**Motor Adapter Corporation**  
4730 JOY ROAD  
DETROIT 4, MICHIGAN



## They'll Do It Every Time . . . . By Jimmy Hatlo

**T**URBINE AMPERE IS A BIG ENGINEER. HE INSTALLS GENERATORS AND OTHER SUCH GEAR....



**B**UT WHAT DO YOU THINK CAN DRIVE HIM BERSERK? TRYING TO GET HIS LIGHTER TO WORK..



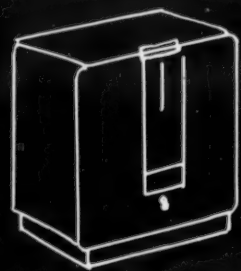
THANK TO  
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## Do You Have 'One Foot In the Door'?

Make this **TRIPLE PLAY**  
for profits in 1950!

PROFITS FROM  
SALES OF  
PHILCO FREEZERS



PROFITS FROM  
INCREASED  
SALES OF  
FROZEN FOODS

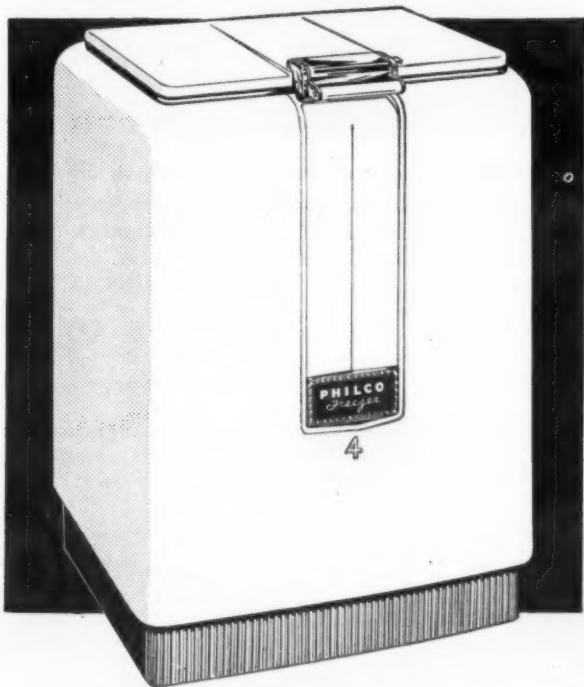


PROFITS FROM  
GREATER USE  
OF YOUR  
PROCESSING  
SERVICES



## THE PHILCO FREEZER

makes rental customers **BETTER** customers



**Y**ES, there'll be plenty of new business in 1950 for locker plants that put this tested and proven selling team to work—the rental locker and the Philco Home Freezer. It's the combination that puts frozen foods on the menu for every meal in rental customers' homes. It creates and maintains greater demand for *all* the frozen foods you process and sell.

The Philco DH-41, with its 4 cu. ft. capacity, is the perfect freezer for this locker plant selling program. Let us show you the success stories of other plants that are expanding their business with this plan. There is no obligation. Get the facts now and be ready for the big selling season. Write Philco, Philadelphia 34, Pa.

## PHILCO

*Famous for Quality the World Over*

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark  
registered  
U. S. Patent  
Office:  
Est. 1928



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## Every Good Appliance Pays for Itself—and Cuts Taxes!

**P**ROFITABLE appliance dealers—the 15% who get up to 80% of the total business—are smart and active. They *work hard* to make money and move merchandise, and they don't miss a trick. (Most of them subscribe to AIR CONDITIONING & REFRIGERATION NEWS, we're proud to say). There are three reasons why these Best Dealers get the bulk of the business:

- (1) They *do* work hard;
- (2) They *believe* in the products they sell.
- (3) They believe that in selling these appliances they are bettering the lot of mankind.

In other words, they realize that they are *serving* their customer, their communities, and the nation by *selling* labor-saving, money-saving appliances. They're doing more than just making money. Let's illustrate that unusual attitude with a story:

Several years ago Detroit city officials dreamed of a Utopia in which the city would not have to collect garbage. In that Utopian dream every citizen obliterated his own garbage either with an electric garbage disposal system or an incinerator. That dream didn't materialize in Detroit; but it has in Jasper, Ind.

Jasper, with a population of 6,800, will end its municipal garbage disposal system this summer to become the first municipality in the world which has kicked out germ-breeding garbage cans and collection trucks, and forever afterward disposed of its garbage disposal problems. Citizens of this forward-looking Indiana town are installing G-E Disposalls *en masse*. Jasper's mayor, Herbert Thyen, estimates that his city's mass installation of electric garbage grinders will save the city \$13,000 annually in wages and equipment for garbage collection and depositing.

What an object lesson for appliance dealers and householders! It can be applied to refrigerators, ranges, home laundries, dehumidifiers, etc., with almost equal impact. Here's the big idea:

Labor-saving home appliances not only give those who purchase them greater convenience, personal pride of possession, and budget savings; they also can reduce local taxes! Take refrigerators, home freezers, oil burners, gas appliances, ranges, hot-water-heaters, vacuum cleaners, and air conditioners. . . . All of these labor-saving appliances reduce the number of housekeeping operations laid on the doorsteps of harried municipalities.

Refrigerators prevent food wastage. So do modern ranges. Thus they make the garbage collectors' job easier. Home freezers make it possible to shop once a week or once a month, instead of daily. That helps solve the parking problem, and saves wear and tear on streets and traffic cops. Vacuum cleaners and dehumidifying air conditioners reduce and eliminate normal collection of dust. Oil-and-gas heat reduces smoke nuisances.

All in all, specialty appliance dealers who sell *aggressively* can cut municipal taxes for themselves and their customers, as well as help their customers save money on their personal budgets.

It's that sort of thing—the realization that they're *doing good*—contributing to the welfare of their communities—that spurs on the Best Dealers. Once a dealer is imbued with that notion of extraordinary *service* to his fellowmen, he's ready to join the elite "upper crust" of the 15% who get 80% of the total business.



## Shift Gives Sales Lift



Sam Gatto, proprietor of Lincoln Market, tells visiting grocer of the sudden increase in ice cream sales as a result of moving ice cream cabinet to front of store.

## Rhode Island Bill Would License Refrigeration Operating Engineers

PROVIDENCE, R. I.—Refrigeration operating engineers and steam boiler operators would be licensed by the State Department of Labor under terms of a bill introduced in the Rhode Island Legislature by Sen. Raymond A. McCabe, Providence Democrat.

Under the bill, no person would be permitted to operate or have direct charge of any stationary engine or stationary steam boiler of more than 30-hp., or of any refrigerating plant of more than 50-ton capacity without first obtaining a state license.

The proposed legislation would authorize the state labor director to name a chief examiner at \$5,000 a year to administer the act. The appointee would have to be a practical stationary engineer of not less than 10 years' experience.

A five-member board of review to consider appeals from decisions of the chief examiner would be created in the state labor department. Board members would be named by the labor director subject to approval by the governor.

Violations of the proposed law would be punishable by fines of from \$10 to \$100 for each offense.

## GECC Opens In Bridgeport

BOSTON—General Electric Credit Corp. has just opened a new office in Bridgeport, Conn., according to H. F. Yotz, northwestern district manager here.

## Carrier Ups Dealer, Distributor Sales Aid By 70% over Last Year

SYRACUSE, N. Y.—Carrier Corp. will provide its distributors and dealers with 70% more advertising and sales promotional support in 1950 than in 1949.

This was announced here by Leslie M. Beals, director of advertising and sales promotion, following a series of dramatized regional sales meetings during which Carrier introduced 47 new products to more than 1,500 representatives.

"More than 350 separate Carrier advertisements will appear in 41 publications in 1950," Beals said. "Both our consumer and trade paper schedules will be the largest in Carrier history."

This was the fifth consecutive year in which Carrier had increased its advertising and promotion budget over the previous year, he stated. The corporation's expenditures for this purpose in 1950 will exceed \$1,500,000, with particularly heavy increases at the local level, he pointed out.

"Although we are again enlarging our national schedule," Beals said, "our greatest increases in 1950 will be in local markets by means of newspaper space and television. We have considerably liberalized our regular local advertising assistance plan for dealers and distributors. In addition, we are introducing a special controlled advertising program which has been enthusiastically received by our outlets in 26 selected marketing areas."

"This is the first time Carrier has used television. We are preparing a series of one-minute spots, which will be backed by newspaper advertisements on the same themes. In areas where television is not available, we will concentrate in newspapers."

"The local advertising is being supported by an entirely new and larger line of booklets, catalogs, and direct-mail pieces which are dovetailed with the market targets of the newspaper, magazine, and television programs. Dealers at the five regional sales meetings indicated they would take full advantage of both advertising assistance plans and the direct-mail material."

## Relocation of Ice Cream Case Skyrockets Volume

LINCOLN, Neb.—Ice cream sales more than doubled at the Lincoln Market, 2201 "O" St., when the location of the reach-in vending case was changed from a rear position in the supermarket to the check-out stations at the front of the floor, according to Sam Gatto, proprietor.

In fact, sales increased so rapidly that he found it necessary to add a second vending case soon after the relocation was made.

The refrigerated case for packaged ice cream originally was placed adjoining the frozen food cabinets near the back of the store.

Gatto and his clerks overheard remarks from customers about ice cream starting to get soft by the time they had made the rounds of the floor. The grocer also observed that a number of patrons who did buy ice cream, waited until they had done their other shopping, then walked back to the ice cream case.

As a result of this observation, the refrigerated merchandising case was moved up front to a position directly back of one of the check-out counters where customers could pick up their ice cream the last thing before checking out. Business skyrocketed and Gatto immediately added a second reach-in vending fixture matching the first one. Now the twin cases conveniently serve the four check-out stations.

## Orr, Inc. Named G-E Parts Depot In Pittsburgh Territory

PITTSBURGH—Orr, Inc., here, was host to approximately 200 refrigeration servicemen and contractors' representatives at a recent meeting held at the University Club, University of Pittsburgh, to announce that it had been appointed a General Electric parts depot, handling condensing units and condensing unit parts in the Pittsburgh area.

W. H. Holt, president of Orr, opened the meeting and introduced John L. Roth, sales manager, parts sales and product service, of General Electric's air conditioning department, who discussed modern condensing unit manufacture.



with a **United** DRY-KOOL BOTTLE COOLER

You eliminate slippery wet bottles with a United Dry-Kool. This fine bottle cooler features quick EVEN cooling, clean DRY handling and United's exclusive "Lift-A-Way" doors. Manufactured in 4, 6, 8 and 10 foot sizes, the Dry-Kool can be had with either detached or self-contained refrigerating unit.

## NO WASTE SPACE

United Dry-Kool bottle cooler efficiently swallows case after case in its roomy, well-planned interior.

## SIMPLE TO INSTALL

Dry-Kools present no installation problems... and are attractive fixtures in any business establishment.

For Complete Information Write or Phone

**UNITED REFRIGERATOR COMPANY**  
HUDSON, WISCONSIN

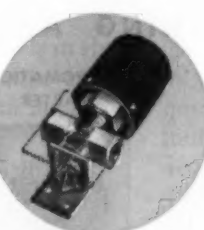
**Versatile**  
Use This ONE Solenoid for

REFRIGERANT  
WATER  
AIR  
GASES, OIL AND NON-CORROSIVE LIQUIDS

Here's a new idea in control versatility... a single solenoid that can be used with any non-corrosive liquid—refrigerants, including Freon 22, water up to 185° and oil, as well as gases and air.

## EXTRA CAPACITY RANGE

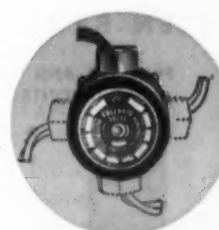
Small, compact in size, the new A-P Model 73 RJX has a tremendously wide range of capacity. For instance, with Freon 12 it is rated 2.4 tons at 2 lb. drop to 12.5 tons at 10 lbs. With Freon 22 the range is 2.88 tons to 14.9 tons, and with Methyl or Sulphur it is 4.92 to 25.65 tons. With water and similar liquids the Model 73 RJX will handle 42 gallons per hour at 2 lbs. pressure or up to 606 gallons at 100 lbs. pressure. Three orifice sizes are available — 5/32", 3/16", and 7/32", with maximum operating differentials at 275, 200, and 125 lbs. respectively.



Handy bracket permits mounting in any of several positions.

Coil Cover can be moved for greater convenience in wiring.

"Moisture-proof" coils prevent coil burn-outs.



Improve your systems, simplify your service now with the new A-P Multi-Purpose Model 73 RJX Solenoid. See it at your Wholesaler, or write for bulletin RWS 100.

**AUTOMATIC PRODUCTS COMPANY**

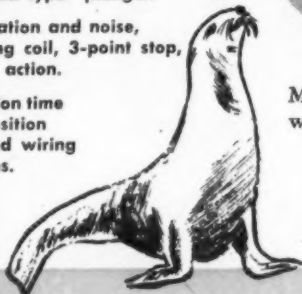
2450 North Thirty-second Street • Milwaukee 10, Wisconsin  
Export Dept., 13 East 40th Street, New York 16, N. Y.

**DEPENDABLE**  
NEW **AP** MULTI-PURPOSE  
Model 73 RJX Solenoid Valve

## THESE FEATURES

## MULTI-PURPOSE MODEL 73 RJX

- ONE Solenoid replaces MANY, handling all non-corrosive liquids, gases, air.
- Extra Wide Capacity Range avoids carrying valves for varying needs.
- Positive, fast action on minimum power, due to "floating impact type" plunger.
- Silent, free from vibration and noise, with exclusive shading coil, 3-point stop, and floating plunger action.
- Requires less installation time and effort, with 4-position mounting bracket, and wiring from several positions.



**DEPENDABLE** Refrigeration Valves

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALERS EVERYWHERE...  
RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

## Train here for These Growing Fields

• **AIR CONDITIONING • HEATING**  
• **REFRIGERATION**



Military, Academic or Practical Training is evaluated for advanced credit. Preparatory courses are also available. Faculty of 85 specialists. 1555 currently enrolled from 48 states and 23 foreign countries. Over 35,000 alumni. Terms open April, July, Oct., Jan.



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Founded 1903 by Oscar Werwath

Write for free 110-page catalog and 48-page pictorial booklet, "Your Career."

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Dept. AC-350 1020 N. Broadway, Milwaukee, Wis.  
Without obligation, send full facts on Air Conditioning, Heating and Refrigeration courses—plus 110-page catalog and 48-page "Your Career" booklet.

Name ..... Age .....  
Address .....  
City ..... Zone ..... State .....  
☐ Check if World War II Veteran



## Development of a Defrost Condensing Unit

At the All-Industry Refrigeration & Air Conditioning Exposition late last year Lehigh Mfg. Co. introduced an "automatic high-side defrost condensing unit." Purpose of this product is to control frost accumulation on evaporators through a particular method of control and operation of a condensing unit. The following article is the first published article describing the development of the unit, characteristics of its design, and a description of how the defrost system operates.

By John C. Souders, Lehigh Mfg. Co.

The Lehigh automatic high-side defrost condensing unit did not come into existence by accident.

At an engineering conference in the summer of 1948 Lehigh Mfg. Co. engineers were discussing the feasibility of controlling frost accumulation on evaporators, in low-temperature applications.

During the discussion the statement was made and reiterated that the only reason for ever defrosting any evaporator was because the efficiency of the evaporator drops off in direct relation to the amount of frost accumulated. Such being the case, it must be remembered that as the efficiency of any evaporator decreases, there is always present a corresponding decrease in the evaporator pressure.

Thus, to control defrost action automatically, the controlling factor would be the drop in efficiency, measured in pounds per square inch (p.s.i.g.) on the compound gauge. A system based on such a principle would have the advantage that defrosting would be accomplished only when necessary.

Naturally, many and varied problems would arise before this idea

could even be placed on the drawing board. Such problems as source of heat for the defrost . . . methods . . . motor loading . . . flow . . . pressures . . . temperatures . . . flow reversing means . . . solenoids . . . controls . . . production problems . . . cost . . . simplicity of operation . . . acceptability.

The Lehigh engineering team decided to approach this challenge the hard way—to build a test unit first and then put it on the drawing board.

Realizing that under any given set of conditions, on applications of 32° F. and below, the condenser in conjunction with the fan offers far greater capacity (B.t.u./hr.) than the evaporator, the engineering department quickly ended its search for an unlimited source of heat for defrost. By reversing the flow of refrigerant and in effect making the low-side evaporator act as the high-side condenser, and making the high-side condenser act as the low-side evaporator, practically any evaporator temperature desired for defrost could be attained.

The Air Valve Div. of the company furnished the necessary reversing valve, solenoid operated, and a note

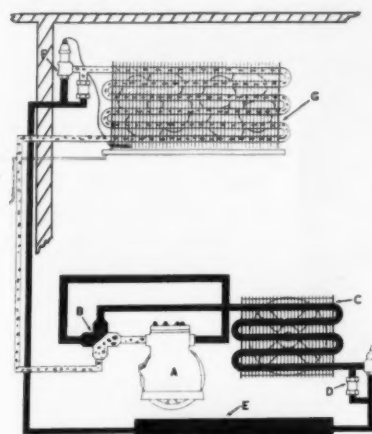
of appreciation is due the control and valve manufacturers who furnished special equipment to Lehigh specifications, without at any time questioning the sanity of our engineers.

The first unit was tested in April, 1949, and the tests convinced the engineering staff that it had a practical defrost system. Heat obtained from the condenser was inexhaustible (the longer the unit remains on the defrost cycle, the higher the evaporator temperature rises), return to cooling was instantaneous, motor loading was negligible.

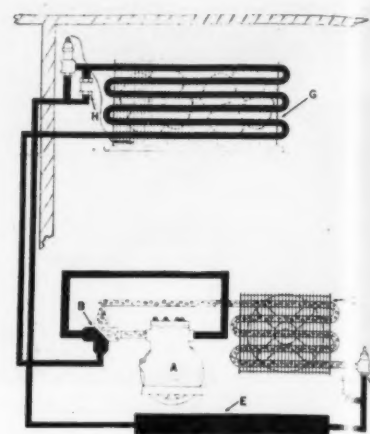
After the first tests all personnel connected with the defrost project redoubled their efforts in an attempt to have a model ready for display at the All-Industry Refrigeration & Air Conditioning Exposition in November of 1949. Those who attended the Exposition saw the working model and the explanation of the cycle. For those who did not see it, the following is a description of the defrost condensing unit and a run-through of the cooling and defrost cycles.

The liquid line from the receiver of an air-cooled condenser is normally connected directly to the

### Tracing the Refrigerant Flow In Two Cycles



During the cooling cycle, the refrigerant flows from A the compressor, through B the four-way valve, through C the unit condenser, through D the check valve, through E the receiver, through F the thermostatic expansion valve, through G the evaporator, through B the four-way valve to A the compressor.



During the defrost cycle the refrigerant flows from A the compressor, through B the four-way valve, through G the evaporator, through H the check valve, through E the receiver, through I the automatic expansion valve, through C the unit condenser, through B the four-way valve, to A the compressor.

thermostatic expansion valve. The Lehigh defrost unit, however, requires an expansion valve by-pass since the liquid refrigerant must flow back through this line to the liquid receiver on the defrost cycle. (See Fig. 1.)

Fig. 1

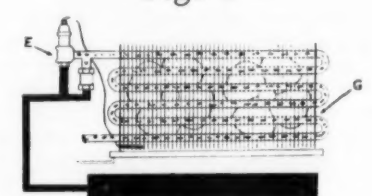
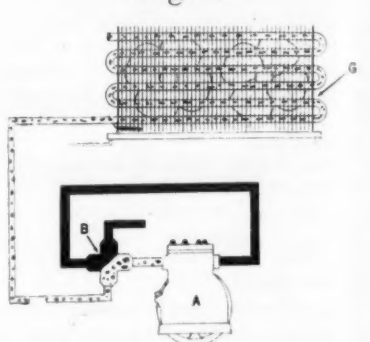


Fig. 2



with capacity in regards to condensing unit balance.

After the refrigerant has moved through the evaporator and reduced the evaporator temperature, it returns directly to the compressor body through the 4-way reversing valve, solenoid operated, in its superheated vapor form (see Fig. 2).

The 4-way reversing valve, when the unit is operating on the cooling cycle, channels the superheater vapor directly to the suction port of the compressor body.

After discharging the compressed refrigerant vapor from the compressor

(Concluded on next page)



The Brunner LPG (Liquefied Petroleum Gas) Compressor Unit is equipped with an explosion-proof motor and an A-B Solenoid Starter in a NEMA Type 7 enclosure for hazardous gas locations.

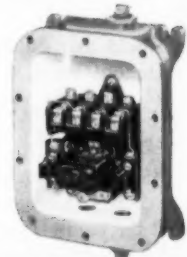
**BRUNNER**

**COMPRESSOR UNITS**

equipped with



**Trouble Free Motor Controls**



A-B Bulletin 709 Solenoid Motor Starter in NEMA 7 enclosure. Air break contacts. Gray enamel finish. White interior.

**WHY ARE ALLEN-BRADLEY STARTERS SO POPULAR** for air-conditioning service? . . . Because they are trouble free. Only one moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

**NO CONTACT MAINTENANCE.** Allen-Bradley patented silver alloy contacts never need cleaning, filing, or dressing.

**DEPENDABLE OVERLOAD RELAYS.** Allen-Bradley thermal relays are accurate and dependable even after long service.

The A-B trademark stands for millions of trouble free operations. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wisconsin.

### ALLEN-BRADLEY AIR-CONDITIONING AND REFRIGERATION CONTROLS

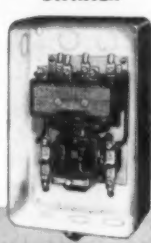
PRESSURE AND TEMPERATURE CONTROLS



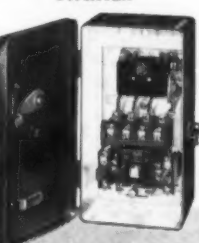
MANUAL STARTER



AUTOMATIC STARTER



COMBINATION STARTER



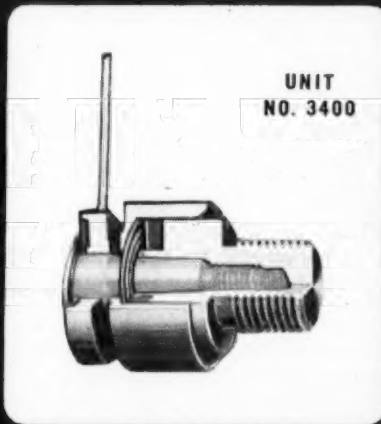
HEAVY COMPRESSION STARTER



High-pressure cutout and motor starter in same enclosure. Temperature controls can be mounted with motor starter in same way.

**ALLEN-BRADLEY**  
**SOLENOID MOTOR CONTROL**

QUALITY



## ROTARY SEAL REPLACEMENT UNITS

✓ Simple in Construction ✓ Easy to install  
✓ Efficient in operation ✓ Economical . . . you get all these important features in 18 years of time-tested, performance-proved ROTARY SEALS . . . A complete line of sizes.

MORE THAN 848 MODELS



AT ALL LEADING JOBBERS

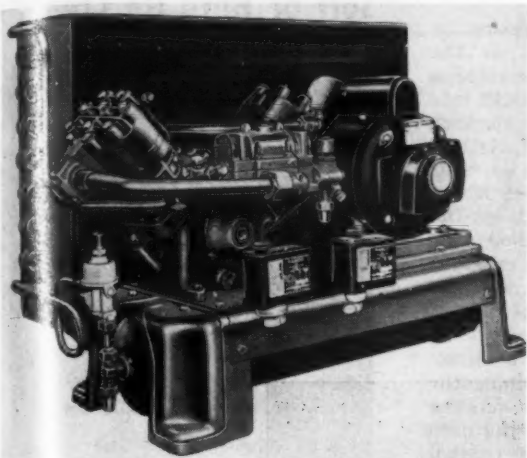
"Seal with

Certainty!"

2020 NORTH LARRABEE STREET  
CHICAGO 14, ILLINOIS, U.S.A.  
CANADIAN AGENT: 2025 ADDINGTON AVENUE  
MONTREAL 28, QUEBEC, CANADA



# Unit Takes Up Very Little More Space



Pictured here is the Lehigh 3/4-hp. air-cooled automatic high-side defrost condensing unit. According to the manufacturer, dimensions of this unit are not increased over those of the standard unit by more than 3 in. in depth, length and height remaining the same.

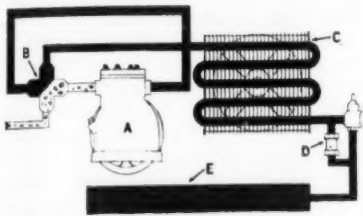
## Operation of a Defrost Condensing Unit

(Concluded from preceding page)

sor body through the 4-way reversing valve, the refrigerant flows to the condenser, where latent heat is removed, and the vapor is restored to a liquid.

Upon leaving the unit high-side condenser the liquid flows through a check valve (part of a combination automatic expansion and check valve) and returns to the receiver. (See Fig. 3.) The refrigeration (cool-

Fig. 3



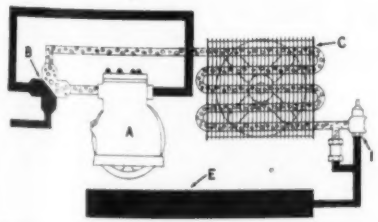
ing) cycle is now complete as the refrigerant has made the complete cycle.

### DEFROST CYCLE

Now assume that the condensing unit is on the cooling cycle, which has been explained and diagramed in detail, and the evaporator requires defrosting by reason of an efficiency drop which has been pre-determined. The corresponding pressure drop activates the low-pressure control (reverse acting) which, in turn, energizes the solenoid on the 4-way reversing valve. The refrigerant is immediately reversed in its direction of flow and the defrost cycle begins.

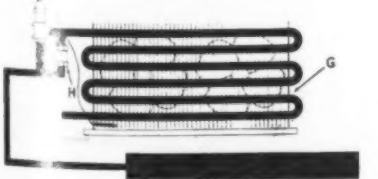
The high pressure refrigerant vapor which has latent heat, heat of compression, and friction heat (from the compressor) flows from the compressor body through the 4-way reversing valve, through what normally is the suction line (on the cooling cycle) directly to the evaporator, which on the defrost cycle actually becomes the high-side condenser (see Fig. 4).

Fig. 4



At this point defrosting takes place very rapidly and the high-pressure refrigerant vapor is reduced to a high-pressure liquid and continues its cycle flowing through the by-pass check valve and back to the air-cooled receiver. (See Fig. 5.)

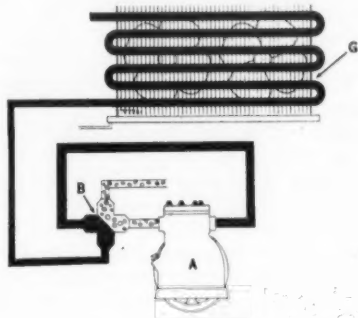
Fig. 5



From the air-cooled receiver the high-pressure refrigerant, in liquid form, flows through the expansion valve (part of a combination automatic expansion and check valve) into, at a greatly reduced pressure, the high-side condenser.

The high-side condenser during

Fig. 6



this cycle (defrost) actually becomes the low-side evaporator. It is from this source, because of ambient temperature and air displacement (unit fan speed is approximately 1,725 r.p.m.) that an inexhaustible amount of heat is obtained for defrost. The refrigerant then flows from the unit condenser in its low-pressure superheated vapor form directly to the suction side of the compressor body, through the 4-way reversing valve. (See Fig. 6.) The defrost cycle is then complete as the refrigerant has made a complete cycle of the system.

By making all defrost components as an integral part of the condensing unit Lehigh is able to furnish a factory assembled "automatic high-side defrost condensing unit." The installer must furnish but one additional piece of equipment, the check valve which is installed to by-pass the refrigerant around the evaporator expansion valve.

The dimensions of the high-side defrost condensing unit are not increased over those of the standard condensing unit by more than 3 in. in depth on the 3/4-hp. Lehigh air-cooled unit, and less than 1 in. on the 1-hp. unit. The length and height dimensions remain unchanged.

An approximation of defrost ability of the 1-hp. unit with a 90° F. ambient and based on ice melting at 32° F. is that the unit can deliver up to 18,000 B.t.u. per hour (low-temperature installation) on the defrost cycle, or 300 B.t.u. per minute at 25 lbs. (p.s.i.g.) suction pressure, which is equivalent to melting 2 lbs. of ice per minute at 32° F.

The length of time required to defrost a specific evaporator will vary with the temperature difference (between refrigerated air and evaporator), humidity, and ambient temperatures. However, the salient feature of the automatic high-side defrost condensing unit is the fact that it will remain on the defrost cycle for only such time as is necessary to defrost the evaporator completely.

The return to cooling after the completion of the defrost cycle is instantaneous, and accomplished in the exact reverse manner as the defrost cycle was initiated. When the evaporator temperature rises to a pre-determined point which will insure complete defrost and drain, the corresponding pressure increase in the evaporator activates a high-pressure control (reverse acting) which energizes the solenoid on the 4-way reversing valve, and the unit reverts to the cooling cycle.

The high and low-pressure controls (reverse acting), which are an integral part of the automatic high-side defrost condensing unit, are in no way to be related to the temperature of the refrigerated area. These two pressure controls are used only to energize the solenoids on the 4-way reversing valve which reverses

the cycle from cooling to defrost and back to cooling.

The normal refrigeration cycle must be governed by means of a temperature control which will respond to the temperature of the refrigerated area only.

It is important that the blower fan, on the evaporator, be stopped during the defrost cycle. This may be accomplished by using a temperature control which will respond to the evaporator temperature only. This must be a control which breaks contact on temperature rise, and for purposes of uniformity we shall refer to this temperature control as reverse acting. A control with the proper setting (degrees F.) is important, consistent with the temperature application.

On water-cooled units the water valve must be by-passed to allow unrestricted water flow during the defrost cycle. This becomes a necessity since the water-cooled condenser becomes the low side of the system during the defrost cycle and also acts as the heat source to accomplish defrost.

This article with the illustrations describes, in as simple terms as possible, what we at Lehigh, as the result of our research and tests, believe to be the most logical and practical means (by pressure) of controlling the defrost cycle.

However, in view of the fact that there are many applications which embrace unusual situations, the defrost cycle may be controlled by other means as conditions warrant. Possibly an arrangement based on a given number of hours of compressor operation is necessary. Or, the defrost cycle may be controlled manually as well as automatically.

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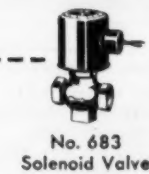
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## What's New

### Driers Blow Air Into Center of Tumbling Clothes

MANSFIELD, Ohio—The new Westinghouse clothes drier, called the D-3A, was made possible through the development of a new system of air-flow within the machine.

The new air-flow system injects the fan-blown heated air directly into the center of the tum-

RIGHT: Westinghouse clothes drier Model D-3A.

bling clothes from an opening on the loading chute inside the machine, instead of passing the heated air through the perforations of the basket in which the clothes are held.

This system of air-flow is also used in the new 220-volt automatic electric clothes drier, called the D-3.

The new air-flow system developed for the clothes driers has cut drying time down by one third in the 220-volt model, and has made possible a practical 110-volt model, Westinghouse says.

In both driers, the heating elements are concealed in the blower housing below the drying basket, eliminating danger of contact with the clothes. A six-inch fan pulls fresh air

through the grille opening in the front of the machine and over the heating element and directly into the front opening of the drier basket.

In the 110-volt model, a 1,500-watt element is used. In the 220-volt drier, the heating is done by two elements. A 3,400-watt unit is on constantly and a 1,400-watt element cycles on and off to compensate for changes in voltage and room temperature.

With this heating system, approximate drying times for the 220-volt drier are under an hour for a full load completely dry to about 35 minutes for the same load damp dried ready for ironing. The 110-volt drier times are, approximately, for a full load completely dry, less than two hours and the same load damp dry for ironing, less than 50 minutes.

Drying time on the 110-volt drier is set by a single control dial and it automatically turns off when the pre-determined length of drying time has been reached. Drying time on the 220-volt drier is automatically handled by the Dry-Dial control which has a sensitive thermostat that shuts off the drier when the clothes are dried to the degree chosen by the user.

The 110-volt drier is installed by merely plugging its extension cord into a convenience outlet. The 220-volt drier requires 3-wire service installation. Both machines operate on alternating current.

Both driers are styled in the Westinghouse laundry equipment cabinet with its slanting front and load-shelf doors. New polished stainless steel trim has been added to the port-hole design on the doors and the company name is mounted at the top front of the drier in an attractive bright metal name plate with a background of maroon.

Both models are equipped with automatic pop-up lint traps. The lint trap comes up to an easy lift-out position each time the drier door is opened to remind the user that the lint trap should be cleaned after each drying operation. The driers can be vented to the outside and vents are provided on both the back and side of the machine for this purpose.

Both the D-3 and D-3A, carry a

suggested list price of \$199.95, a \$40 price reduction under the 1949 price. National distribution is expected within 30 days.

The new Laundromat washer is styled in the same cabinet as the clothes driers and has a weighing door. A scale mechanism is built into the door and registers regular, medium, and small loads of clothes. The indicator for the scale is built into the slanting front panel where it can be conveniently read by the user. The feature is called the "Weigh-to-Save" door and assures the user that every load will be washed and rinsed in the correct amount of water.

The makings of regular, medium, and small on the scale indicator correspond to the divisions on the Water-Saver control so that the user merely sets the Water-Saver control at the water level indicated on the scale. The Water-Saver control regulates the amount of water to be used for the various size loads of clothes. The combination of the Weigh-to-Save door and the Water-Saver control permits the user of the Laundromat to realize marked savings in both soap and hot water.

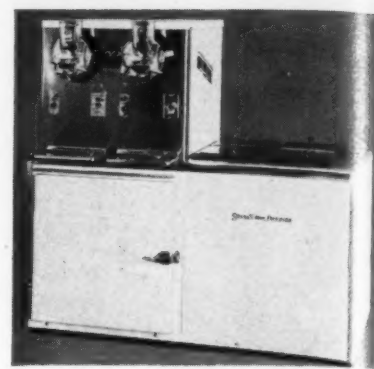
The settings on the scale and Water-Saver control call for the following typical amounts of water to be used in any washing: Regular, 26 gallons for nine pounds of clothes; Medium, 20 gallons for six pounds of clothes; and Small, 16 gallons of water for three pounds of clothes.

Within the limits of each setting, the Water-Saver automatically varies the amount of water to be used. For example, it will use less water for an eight-pound load than for a nine-pound load even at the same setting.

After the Water-Saver has been set correctly, the newly-designed control for setting water temperature and washing time is set. It provides full flexibility of operation. If a small load of dirty work clothes—three pounds or less—is to be washed, the control dial can be set for full length washing and for the hottest water that can be delivered to it. Or, if a large load—nine pounds—of slightly soiled synthetic fabrics is to be washed, the control dial can be set for cool or warm water and a shorter washing cycle.

The L-5 Laundromat will retail at a suggested list price of \$269.96, a reduction of \$30 under the 1949 price.

### Sweden Freezer Handles Soft or Hard Ice Cream



SEATTLE, Wash.—The Sweden Freezer Mfg. Co., maker of soft ice cream machines, has announced a new series of fountain freezer models that consist of the freezing head portion of a standard Sweden Speed Freezer combined with a mix compartment and a hardening-dispensing cabinet into one compact unit.

Outstanding features of these new units are their versatility and small space requirements. A complete soft and hard ice cream plant in itself, each combination provides storage space for 24 gals. of mix and 40 gals. of ice cream.

Combinations with two freezing heads permit continuous production of one flavor, two different flavors, or soft ice cream in one head and milk shakes in the other.

In addition, hard ice cream or ice cream novelties can be made in the freezer and then hardened and dispensed out of the cabinet. This is made possible by a temperature control that permits hardening of the products at a low temperature and then dispensing of them at a higher temperature.

Available in this combination series are the double-head 4-qt., the single head 2½-gal., and the single head 4-qt. freezers.

The larger combination models may be obtained with suitable remote condensing units. The single head 4-qt. freezer combination is completely self-contained.

Sweden Freezer Mfg. Co. is located at 3401 17th Ave. W., Seattle 99.



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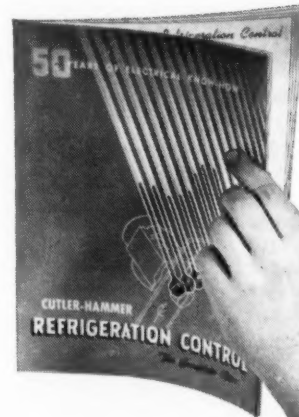
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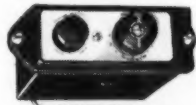


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#### C-H CATALOG SHOWS

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9502N417 C-H "specific-fit" for Briggs 1937 models.



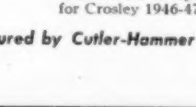
9521N11 C-H "specific-fit" for Leonard 1937 models.



9502N387 C-H "specific-fit" for Norge 1932-33 models.



9521N95 C-H "specific-fit" for Copeland 1939 models.



9521N156 C-H "specific-fit" for Crosley 1946-47 models.

Want to save time and trouble on your refrigeration control replacements? Then make the Cutler-Hammer refrigeration control catalog your standard "guide" on replacements. Here you will find "specific-fit" units which are not merely listed but already manufactured by Cutler-Hammer for more than 1,000 individual refrigerator models which the industry has produced since 1925. No "modifying", no fussing, no compromises, when you put in C-H "specific-fit" replacement control units. And you'll also quickly see how the widely-known Cutler-Hammer name (advertised in The Saturday Evening Post, Time, Newsweek, American Home, Better Homes & Gardens, House & Garden, etc.) builds customer confidence and good will. The C-H refrigeration control catalog, as well as the items you need, are available through your authorized C-H refrigeration wholesaler. Do not forget, this C-H refrigeration control line includes the outstanding general purpose replacement control (9521N9) for use with motors having "built-in" overload protection. CUTLER-HAMMER, Inc., 1362 St. Paul Ave., Milwaukee 1, Wisconsin.



Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast.



## What's New (Con't)



### Vogt Machine Makes Ice In Tube or Crushed Form

LOUISVILLE, Ky.—A 1-ton tube-ice package unit, designed to manufacture 2,000 lbs. of cylinder or crushed ice in 24 hours has been introduced by the Henry Vogt Co., 10th and Ormsby Sts., Louisville 10. The machine is completely assembled, wired, and piped at the factory. The standard unit contains a 3-hp. water cooled condensing unit, has a stainless steel casing, and is offered with an insulated stainless steel lined ice bin which will hold approximately 650 lbs. of ice in storage.

All operations are completely automatic including the shutting off of the unit when the bin is full.

A reversible cutter permits the user to make either ice in the form of cylinders 1 1/4 in. o.d. by 1 1/2 in. long or crushed ice by merely moving a toggle switch on the control panel. The stainless steel ice bin features "scoop out—shovel out" doors which permit the user to open the top door only for removing small quantities while both doors may be opened to give greater access for shoveling out large quantities.

The ice making unit can be obtained without the ice storage bin

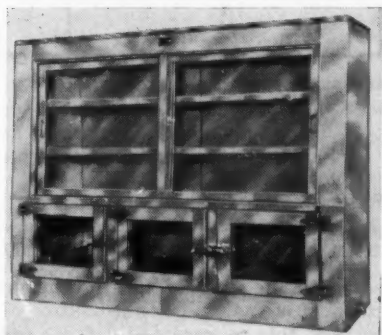
and without the stainless steel casing. The unit can be ordered to produce crushed ice only.

Capacity rating is based on the machine receiving makeup water at 75° F. and operating in a room with 75° F. ambient.

Vogt automatic tube-ice machines have been manufactured here since 1938 and units are operating all over the world with capacities for single installations up to 100 tons of ice per day, the company said.

The new 1-ton package unit is intended for use in restaurants, clubs, and hotels.

### Reach-In Designed for Keeping Vegetables Moist



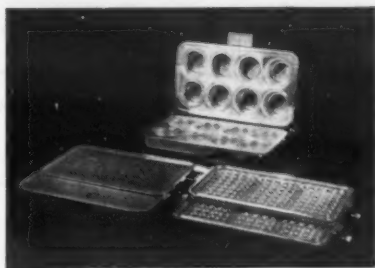
DALLAS—The "Krispy Mist" vegetable cooler, a new type of design in refrigerated vegetable display cases, is being manufactured and marketed by Zero Plate Co. here.

The products displayed in this enclosed fixture are refrigerated by forced circulation of a cold, moist, misty fog which operates on a cycle of 30 seconds on and 15 minutes off, says the manufacturer. Moisture is automatically deposited on all of the contents, it is claimed.

An advantage of the enclosed fixture is that it keeps out dirt and insects, the manufacturer asserts.

Upper part of the cooler has sliding glass doors and is in the general style of a wall-type dairy display case. Three doors across the bottom are conventional storage door type, but with glass panels.

The fixture is 8 ft. long, 6 ft. high, and 32 in. deep.



### Grill Can Be Used for Toast, Muffins, Waffles

CLEVELAND — A combination muffinette, waffle baker, sandwich toaster, and grill has been introduced by the Lewis Electrical Mfg. Co., 841 E. 88th St., Cleveland 8.

Basically an 8-cup muffin baker, the electrical appliance is equipped with sandwich toaster grids and waffle grids that are attached by thumb screws over the muffinette grids. Thus the heating elements are never exposed or damaged as the muffinette grids are never removed.

Called the model 853, the appliance has two heats, a high and low. High heat is used particularly with the waffle baker and sandwich toaster. Alternating or direct current, 110-220 volts, may be employed.

The unit is said to make muffins and biscuits in from 10 to 12 minutes.

## Schaefer Cabinet Features Determined by Survey

MINNEAPOLIS—Four new "Clearview" ice cream merchandising cabinets, available with or without superstructures, are being announced by Schaefer, Inc., here.

Announcement of these models follows introduction of the conventional "extra capacity" ice cream cabinets.

The new Clearviews have stainless steel sliding glass doors of triple Thermopane, with the double step track feature, all steel construction and narrower widths to allow passage through almost any type of doorway.

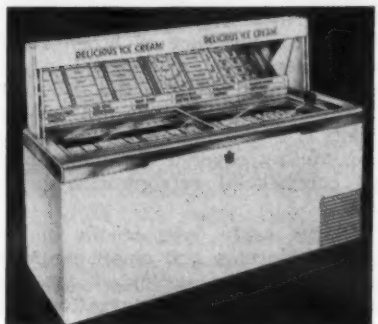
The refrigerated partitions "give every compartment refrigeration on all four sides and give every package direct contact with primary refrigeration surface," according to the company. Maximum display and capacity are said to be insured by engineered spacing of interior partitions.

Robert B. Norris, vice president, said new features of the company's line for 1950 are based on the customer preference study made last year.

The new Clearviews are available in four models; Clearview 8, Clearview 13, Clearview 20, and Clearview 28. Either mirror or three dimensional color picture or Kodachrome superstructures are optional on all models.



'Clearview' Model 13 with three-dimension picture superstructure.



'Clearview' Model 20 with mirror superstructure.

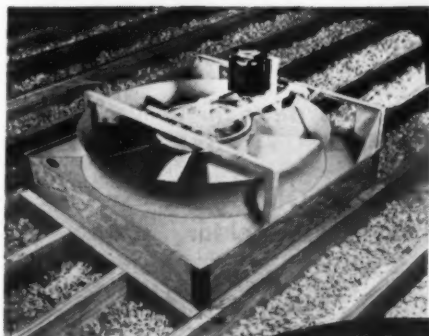
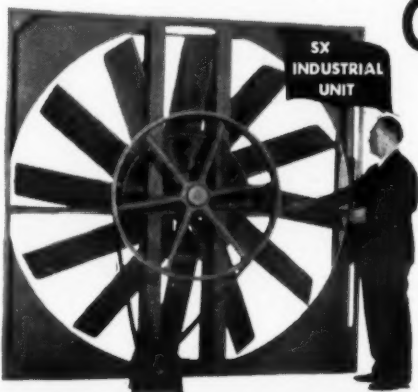
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## Important Role of Moisture In Commercial Preservation Of Food Often Misunderstood

GRAND RAPIDS, Mich.—Elimination of drip pans beneath coils in produce coolers can help in preserving freshness and preventing dehydration losses for retail stores where the produce is usually turned over in three days or less. For long-time storage such practice might cause trouble, and therefore drip pans should be used.

These points were brought out by D. S. McCoy of Frigidaire Division's general sales department in a discussion, "Importance of Moisture in the Preservation of Foods" which was presented before the Western Michigan section of the American Society of Refrigerating Engineers here. McCoy covered both household and commercial refrigeration problems.

"In the early days of the household refrigerator and small commercial installations, accepted practice dictated that 'dry' refrigeration was the ideal condition for the preservation of foods," he said. "Insofar as bacterial contamination of the surfaces of the foods was concerned, this was, doubtless, true. Storage temperatures produced were lower than with previous methods, and better and longer food preservation did result, hence we had progress.

"While the foods were safe from a bacteriological standpoint, it was

found that the surfaces of meat turned dark, and fruits and vegetables wilted and shriveled, due to the extraction of moisture. Their appearance and their eye appeal often left much to be desired, and probably their food value had deteriorated to some extent.

"One of the early problems with commercial refrigeration was that of defrosting the cooling coils in refrigerated fixtures. If defrosting were not handled properly, temperatures in the fixtures rose and food spoilage resulted. About 1926 or 1927, a solution for this problem was found in the application of commercial cooling systems so that the coils defrosted automatically.

"By the use of finned cooling coils with low pressure instead of thermostatic control on automatic refrigeration systems, it was found that the system could be so adjusted that the cooling units would defrost between each cycle of the condensing unit and that temperatures desired could be maintained. No expensive or complicated additions to a refrigeration system were required.

"However, in order to accomplish this type of automatic defrosting, fixture temperatures much below 34° to 35° F. could not be obtained. For application in a retail store, this offered no obstacle whatever. In

those days, mechanical refrigeration was just commencing to replace ice in the retail store, and most of the fixtures using ice rarely produced temperatures much below 50° F.

"It was relatively easy to obtain 40° to 45° F. with good mechanical refrigeration, properly applied; con-

sequently, in spite of the limitations, temperature-wise, of automatic defrosting, this represented definite progress. The lower temperature did definitely increase useful storage life and reduce spoilage, compared to former methods.

"From the standpoint of long-time storage the 34 to 35° F. limitation presents some problems," McCoy explained. "The accepted practice for storing some perishable foods seems to require temperatures as low as 29° to 30° F. Therefore, if automatic defrosting were to be adopted, the temperature limitations would necessitate some shortening of storage life. Here is one of the first compromises necessitated by adoption of new methods. However, this compromise might well be considered, if improved quality of food delivered to the consumer can be attained.

### Experience In Field

"Field experience with this method showed that in many installations using it, foods stored in the fixtures did not dehydrate as rapidly as in fixtures where automatic defrosting was not used. Reasons for this were not clearly understood at first, but further research to solve other problems soon revealed the fundamental principals involved.

"My first introduction to the importance of moisture in refrigerated storage came in dealing with the handling of retail cuts of meats in retail stores. The so-called 'dry refrigeration' brought complaints from butchers that their meat was discoloring and drying out excessively, particularly in the most common types of display cases being used at that time. Some success in partially solving this problem was obtained when refrigeration systems were applied to these cases so that the systems operated on an automatic defrosting cycle. However, it by no means solved the problem, and additional answers were required to improve the keeping qualities obtainable with most refrigerated display cases of that time.

"About 1930, a cooperative project was arranged between Frigidaire and the Kroger organization. The best talent of both organizations worked together. Table No. 1 shows the results of this work, involving many man-hours, much equipment, and a very substantial financial outlay. The data in this table reduce all of the cases then commonly in use in the retail butcher store and the experimental cases tried to six general types.

"Field observation had indicated that with some types of cases, there was less drying out of the meats. Consequently, these cases, with many laboratory alterations were tested, and compared with those which gave the most trouble.

"From the data accumulated under these six general types, certain very definite conclusions can be drawn," McCoy declared.

### Conclusions from Tests

"For example, examining the refrigerant temperature obtained with the various types of cases, we find that the 'back bunker' coiled case No. 1 operated at the lowest refrig-

erant temperature, while the 'top and diffusion' coiled case No. 6 operated at the highest refrigerant temperature.

"The relative humidity produced increased from 41% to 77% progressively with the increase in refrigerant temperature. The food temperature and air temperature at the platter holding the food, did not vary to too great a degree, ranging from 37° F. as a low to 41° F. as a high.

"Let us assume that this food temperature and air temperature at the platter are constant at 39° F. for all six cases. This is not a dangerous assumption. With all automatically controlled refrigeration equipment, the air temperature in the fixture will vary plus or minus a couple of degrees, due to the cycling of the equipment.

"The important point to note, insofar as refrigeration application is concerned, is that a smaller temperature difference between fixture air and the refrigerant in the coiling produced better results," emphasized McCoy.

"To get this result, a larger coil area had to be used. Results insofar as food technology is concerned, show that as the refrigerant temperature and air relative humidity increased, the shrinkage of the meats decreased, and the salability of the meats increased.

### Lower T.D. Is Better

"The over-all conclusion to be drawn from these data is that better results from the standpoint of optimum preservation of the meat were obtained by decreasing the temperature difference between the refrigerant in the coils and the fixture temperature. Similar conclusions were reported in 1933 by the Pacific Fish Experiment Station of Canada.

"In other words, use plenty of coil surface. However, physical limitations of display case construction and the necessity for good display for merchandising purposes make compromise necessary. The amount of coil which can be placed in display cases is decidedly limited, and thus compromise of results is required.

"The top display case should only be used for sales purposes and is decidedly not a storage fixture. Meats should be removed to a walk-in cooler at the end of each day to preserve optimum quality. Nevertheless, a fundamental principle was uncovered, progress was made, and the principle was found applicable to other problems later, as I shall subsequently develop.

"In connection with relative humidity, while it has a bearing on results obtained, it is extremely dangerous to tie too closely to this factor alone. Other factors affect this one. Reasons for this will be discussed later.

"The next step in preserving optimum quality appears to be the adoption of the 'hydrator' or vegetable pan to the household refrigerator first introduced in January, 1930. It was found that the 'dry cold' of the earlier models of household refrigerators wilted vegetables and dried out meats and other foods.

"Again, while food storage life

(Continued on next page)

Table 1—Tests with Display Cases Permit Definite Conclusions

Evaporator Arrangement	1	2	3	4	5	6
	Back Bunker	Diffusion	Back Bunker and Top	Back Bunker and Top	Top and Diffusion	Top and Diffusion
Refrigerant Temperature	2°	4°	6°	15°	14°	15°
Shrinkage of Meats.....	1.70%	.96%	1.38%	1.25%	.94%	.79%
Saleability						
A.....	12	23	21	22	21	23
B.....	11		2	1	2	
C.....	2					
Relative Humidity.....	41%	51%	60%	63%	77%	68%
Temperature						
In Meat.....	39	41	37	40	40	41
At Platter.....	37	40	38	39	39	41
4" High.....	54	60				50
8" High.....	61	65	43			51
14" High.....	70	73	45			52
Running Time.....	72%	78%	62%	85%	83%	77%

Shrinkage (10 hr. basis) includes dehydration, trimming, weep and spoilage.

Saleability (after 10 hrs. display).

A. Unaffected.  
B. Slightly discolored.  
C. Required trimming.

Condensing Unit smaller for No. 4 than No. 3.

Running time for 10 hr. period.

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## Problems Involved In Moisture Retention Under Refrigeration Outlined by McCoy

(Continued from preceding page)

was increased, and the preservation of food from a bacteriological standpoint was better than any previous methods known due to the lower temperatures produced by mechanical refrigeration; from the standpoint of optimum food preservation, something still had to be added.

"At this point, it is well to examine how food loses its moisture. Fig. 1 shows a typical piece of food stored in a refrigerated space with the cooling unit used to cool the space. The food tends to form a layer of moisture-saturated air around it. The air in the space also contains moisture, but is not saturated. Therefore, it will pick up moisture from any available source, including the food.

### What Happens to Moisture?

"The cooling unit temperature must be lower than the fixture air temperature to transfer heat and maintain the desired fixture air temperature. The wider this differential, the more rapidly moisture will be transferred from the food to the air, and thence to the cooling unit. The moisture is removed from the air and deposited on the cooling unit as frost, or as drops of water, depending on the temperature of the cooling unit.

"Air has a low specific heat and

ties to those obtained in the old back bunker case and in the conventional household refrigerator without the 'hydrator.'

"Early installations that were made, dried out meats severely, and wilted vegetables and produce to such a point that even today the forced air evaporator is not looked upon with favor by some users of refrigeration. Sad to say, even today, many misapplications are still being made," asserted McCoy.

"The results of field observations of faulty forced air installations showed that the drying out of the food was due to three main factors, or a combination of these factors:

"1. Too wide a difference between fixture temperature and refrigerant temperature in the coil of the forced air unit;

"2. Too high air velocity over the food surface produced by the forced air unit; and

"3. Improper adjustment of expansion valves, resulting in all of the coil surface in the forced air unit not being utilized.

"The first two factors are a matter of correct equipment design and correct equipment application. At times, a compromise can be drawn between these two factors.

"The third factor is a matter of operating practice. Consequently, as-

with forced air coils. The additional velocity of the air over the food created by the forced air cooling unit tends to dry out the food more than when using gravity coiling.

"A simple analogy can be made. Every housewife knows that clothes dry more quickly on a windy day. The same principle applies to the use of forced air as opposed to gravity coiling for food refrigeration. Therefore, the statement of relative humidity in percentages can be quite dangerous from the standpoint of refrigeration application, and our hopes for an accurate quantitative answer for the problem are blasted.

### Optimum Velocities

"Optimum velocities for air flow over each and every food will have to be worked out. To do this will require research of stupendous proportions. Here is a problem where the food technologists and refrigeration engineers will have to get together. Until it is worked out, compromise results will have to be accepted.

"Some very fine work has been done to determine the optimum storage conditions for maximum storage life of various types of foods. As published, these usually state a definite temperature, or a slight range of temperatures, and a definite relative humidity, or slight range of the same. The temperature is easy for the refrigeration engineer to produce. For the reasons previously outlined the relative humidity expressed as a definite percentage to be obtained is a stumbling block, and only is usable as an approximate guide.

"Fortunately, the situation is not hopeless. In 1938, L. L. Lewis made

an excellent summary of the more technical aspects of the problem. We have found that if we consider relative humidity in terms of an overall moisture condition in the fixture atmosphere, instead of trying to express it in definite percentages, we arrive at a very practical answer for this problem.

"To do so, we have divided refrigeration applications into four general classifications, depending on the susceptibility to loss of moisture of the food being stored. To produce desired moisture conditions on a practical and economical basis, sufficient coil surface is balanced to the condensing unit to produce the desired fixture temperature, and a suitable temperature difference between fixture temperature and refrigerant temperature in the coil.

"The smaller the temperature difference, the less moisture will be absorbed from the food, and the higher will be the moisture content of the air in the refrigerated fixture. There is a limit to which this principle may be used, for as pointed out previously, some temperature difference must be provided so that heat can be transferred from the fixture air to the coils.

### Sizing of Coils

"Present knowledge and equipment available do not appear to allow economical application of refrigeration to food storage with any closer control of moisture conditions than this, particularly in the retail store. The cost of equipment to do a job of close humidity control is at present prohibitive. Some of the controls, to my knowledge, are not reliable enough at high air moisture content.

"To use this principle of application of refrigeration equipment, where high moisture content of the fixture air and minimum dehydration of food is required, large coil surfaces must be installed. Where low moisture content of the air is permissible and loss of moisture from fixture content is no problem, considerably smaller coil surfaces may safely be used," McCoy said.

"For example, for fruits and vegetables, generally speaking, large coil surfaces and small temperature differentials should be used. When refrigerating canned goods and bottled goods, where a protective coating is supplied by the can or the bottle, the moisture content of the air in the fixture is of no consequence, as it cannot extract moisture from the canned or bottled foods. Here, it is satisfactory to merely provide the proper temperature, and smaller coil surfaces with wide temperature difference may be used.

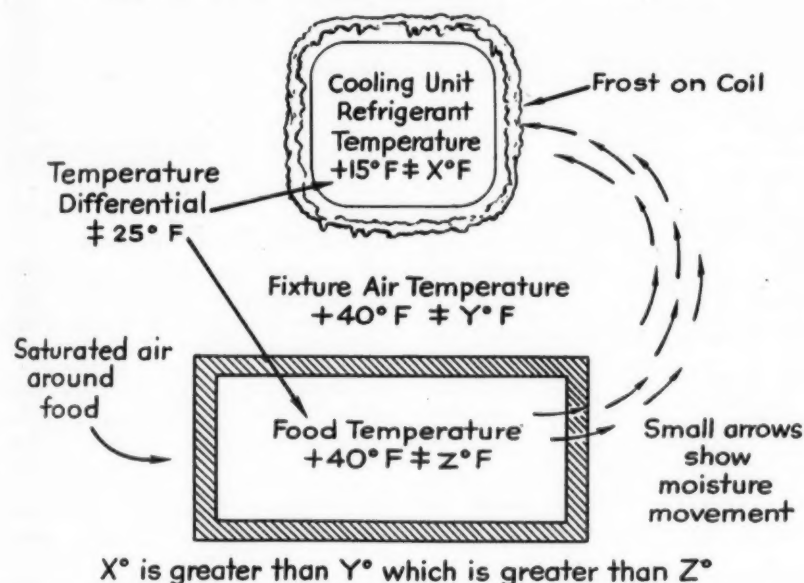
### Problem of Cost

"The use of large coil surfaces, of course, increases the first cost of the installation. Occasionally, this turns out to be a blessing in disguise, for to produce the same temperature with a small temperature difference between fixture air and refrigerant, will sometimes permit the use of a smaller condensing unit, cutting down to some extent the first cost of the installation.

"In all cases, the use of a small temperature difference increases the operating refrigerant temperature which, in turn, gives better performance from the system in the number of B.t.u. produced per watt-hour of

(Continued on next page)

Fig. 1—How Food Loses Its Moisture



mass, while the food has a high specific heat and mass. Therefore, when the cooling unit temperature drops, the air temperature follows quite rapidly. The food temperature follows very slowly. The cooling unit temperature, due to the cycling of the automatic operation, will vary through a relatively wide range, the air temperature will change less, whereas the food temperature will vary but little.

"During such periods, a relatively large vapor pressure differential is created between the food and the air. The saturated layer surrounding the food gives up its moisture to the air and this moisture is replaced from the food in an attempt to maintain equilibrium.

"Another factor influencing the situation is the velocity of the air passing over the food," McCoy said. "A high air velocity tends to break down the saturated moisture layer surrounding the food and causes more rapid replacement of the moisture from the food.

"In principle, the 'hydrator' depends upon maintaining approximately the same temperature as obtained in the over-all food storage space of the conventional household mechanical refrigerator, but not subjecting the food contained therein to the dry circulating air and to the wide temperature differential between that air and the refrigerant in the coil, cooling the refrigerator. Here again the principle of using a small temperature difference to maintain moisture in the food and the air immediately surrounding the food is involved. It also represents the first practical recognition of the effect of air velocity over the food.

"The advantages of automatic defrosting between each cycle cannot be used in the household refrigerator, as it is necessary to maintain evaporator temperatures lower than 32° F. in order to freeze and hold ice cubes. "The first appearance of forced air evaporators in retail storage applications brought about similar difficul-

ties, while the food has a high specific heat and mass. Therefore, when the cooling unit temperature drops, the air temperature follows quite rapidly. The food temperature follows very slowly. The cooling unit temperature, due to the cycling of the automatic operation, will vary through a relatively wide range, the air temperature will change less, whereas the food temperature will vary but little.

### Effect of Blowers

"It was found that in order to offset the increased air velocity produced over the food surface by the forced air unit, that the temperature difference required must be materially smaller than that allowable for gravity circulation units. For example, for general application of our cooling units to retail store storage conditions with 35° F. to 40° F. fixture temperature, we commonly use 18° to 22° F. temperature difference for gravity coils, and 9° to 12° F. temperature difference for forced air coils, when compromise is not necessary due to other limitations.

"These have worked out well in actual practice," McCoy observed.

"Air volume delivered by the fans on the units has been worked out in the design so that it is suitable for retail storage uses when the units are properly installed. Automatic defrosting and continuous operation of the fans are also required. The application of automatic defrosting and other principles learned from the display case tests and from the 'hydrator' in the household refrigerator were thus applied, and practical design and application methods for forced air evaporators in retail coolers were finally worked out.

### Relative Humidity Questionable

"Now, I want to explain my previous caution regarding the danger of placing too much emphasis on fixture air relative humidity in connection with food storage applications. Relative humidity of 90% produced with gravity coils may not produce the same results insofar as optimum food storage conditions are concerned, as 90% relative humidity produced

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## There Are Methods of Overcoming Moisture Problem

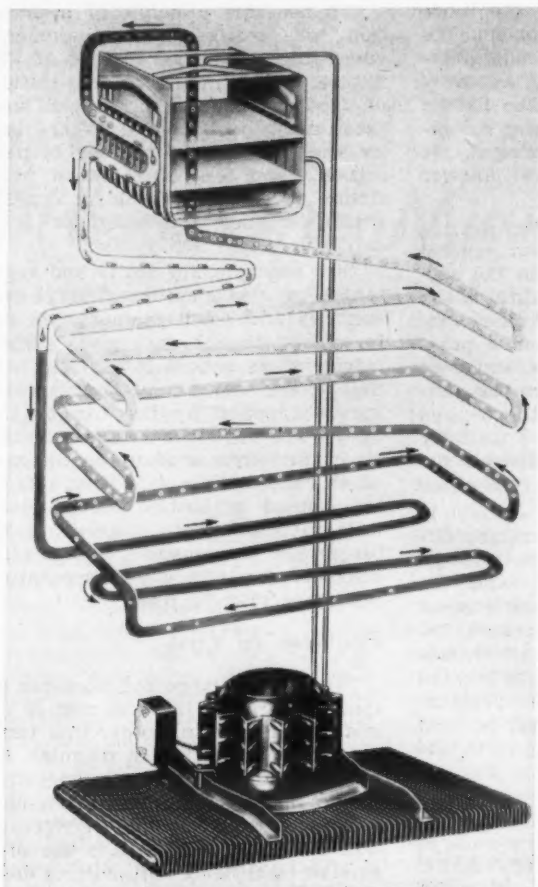


Fig. 2 (left)—"Secondary" refrigeration system as employed in the Frigidaire "Cold Wall" permits high humidity conditions to be maintained in a household refrigerator. Note the action of the refrigerant.

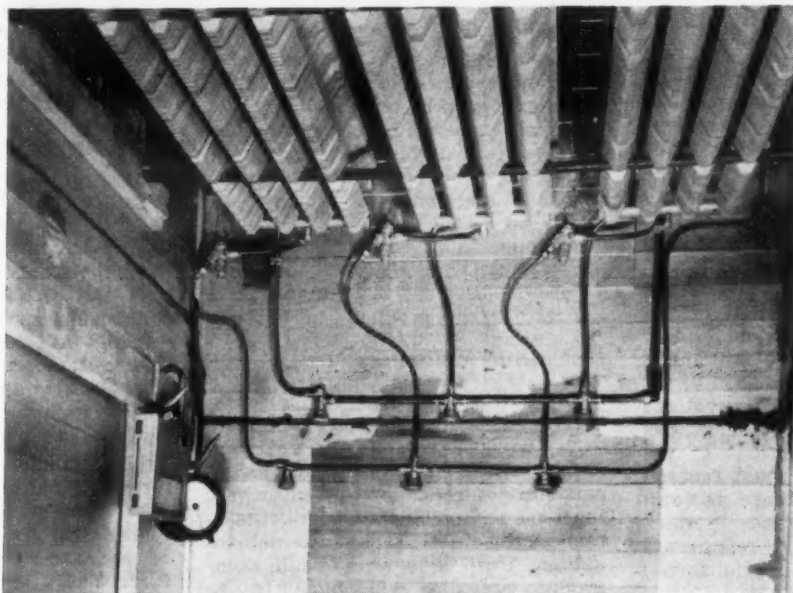


Fig. 3 (above)—Maximum of surface in a gravity coil system refrigerating a 6 x 8-ft. walk-in gave best results in a series of tests to determine shrinkage, trim, and "sales acceptability" of produce.

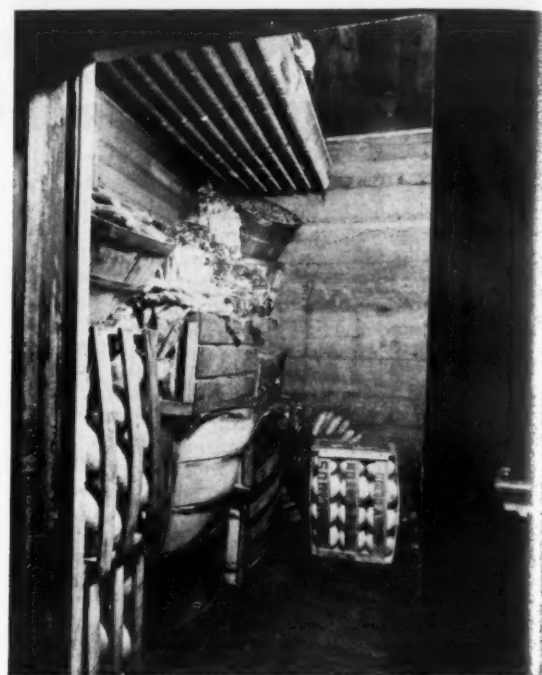


Fig. 4 (right)—Eliminating drip pans beneath gravity coils permits the drip resulting from defrosting to fall on the produce below, helping to maintain freshness and preventing dehydration.

## Conditions Vary with Type of Food--

(Continued from preceding page) electric current consumed to operate the system. In other words, when operating at the higher refrigerant temperatures, with larger coil sur-

faces, some economies in operating costs can be achieved.

"In regard to the danger of generalizing, let us now leave the refrigeration engineer's problems and con-

sider the food technologist's problems for a moment to illustrate this point. In dealing with produce, work to date shows very moist fixture air conditions give optimum storage results. However, if meats are to be handled, the situation is different. If too moist air is used in the storage of meats, difficulties arise due to excessive bacterial growth and slime on the meat surfaces.

"Consequently, it is best practice

in refrigerating meats to provide a condition where there will always be a slight drying of the surfaces. The exact range between excessive air moisture content and lack of moisture which produces excessive drying has not yet to my knowledge been definitely worked out for meats.

"The lesson to be learned from these two illustrations is that each individual food may require slightly different treatment, and a compromise must be reached when a number of different types of foods are stored in the same refrigerated space. This problem is particularly acute in the retail storage cooler and household refrigerator where meats, produce, and all kinds of foods are commonly stored together, necessitating a compromise which will not dry out the produce too much, and still keep the meat from sliming too much.

"In the case of storage spaces where only one specific food is being kept or where foods of the same general nature are being kept, the problem is considerably simpler. Here, we have an example of compromise in engineering, and the food technologist and refrigeration engineer must get together to decide the limits of this compromise.

## Refrigerator Solution

"The next step in the development of technique to provide optimum storage conditions for foods, goes back to the household refrigeration field. It is exemplified by our 'Cold Wall' refrigerator, which was first introduced in 1939.

"The cooling unit is placed in the upper left-hand corner of the refrigerated space. It is connected directly to the condensing unit in the base of the refrigerator by suction and liquid lines, including a 'restrictor' or capillary tube type liquid control. This forms the 'primary' refrigeration system.

"The upper part of the space surrounding the cooling unit and above the glass partition forms a conventional 'dry' refrigeration space cooled by this cooling unit which also freezes ice cubes. Bottled goods and foods not subject to dehydration are stored in this space.

"The space below the glass partition is refrigerated mainly by the 'secondary' refrigeration system, consisting of coils attached to the side walls and bottom of this space and with a loop attached to the left side of the primary system cooling unit. This system is so designed that it operates at high refrigerant temperature with little differential between the air temperature in the lower section and the refrigerant in the tubing. Fig. 2 shows a schematic of both the primary and secondary systems.

"The secondary system operates on the thermosiphon principle. Heat leaking through the walls and from the food evaporates the liquid in the tubing. The vapor circulates upward to the loop on the primary cooling units, is condensed and returns as liquid into the bottom tubes of the secondary system, to be evaporated again as required. Foods subject to dehydration are stored in this compartment. Air circulation is practically non-existent in the lower compartment. A 'hydrator' is also located at the bottom of this compartment for storage of foods very susceptible to dehydration.

"Thus, we have in one refrigerator four distinct zones of refrigeration:

"1. The primary cooling unit for freezing ice cubes, and short-time storage of frozen foods.

"2. The 'dry' refrigeration compartment for storage of foods not subject to dehydration.

"3. The 'Cold Wall' compartment for foods requiring protection from dehydration.

"4. The 'hydrator' for foods very readily dehydrated.

"By applying the principles of reduced air circulation over the food, and small temperature difference between the fixture air and the heat absorbing cooling surfaces, better storage conditions for foods which are easily dehydrated have been provided. Due to the necessity for freezing ice cubes, automatic defrosting between cycles cannot be applied.

## And Now Pre-Packaging

"A recent development, namely the pre-packaging of produce and meats for retail sale, utilizes the same fundamental principles which have been previously discussed. Ignoring the merchandising aspects of this development, and considering only the moisture problems involved, the work which has been done along these lines so far indicates that a packaging material which passes a little more moisture must be used for meats than for produce.

"Within the past few years, some additional work has been done by Frigidaire and the Kroger Food Foundation, indicating the way to better results for storage of produce in retail stores. I see no reason why the results of this work cannot be applied to large storage rooms for wholesale and long-time storage of produce," said McCoy.

"This work provided comparative results between forced air cooling units and gravity cooling units installed in a 6-ft. by 8-ft. by 10-ft. retail produce cooler. The cooler was operated at 40° F., and all cooling units were operated on an automatic defrosting cycle. Fresh produce amounting to approximately 225 lbs. for each test was stocked in the cooler and stored over a three-day period, simulating conditions in the average retail store.

"Several types of forced air units were tried, one of which was provided with a humidifying device operated by passing the air stream over a pan of water which was heated by an electric heating element to return moisture to the air. The same condensing unit was used for all of the coil combinations tested. Equipment used was that available commercially—no special coiling was made up for the tests.

## 14 Items Were Tested

"Fourteen items of produce were tested, and a record was kept of the daily shrinkage during the period of the test. The produce was trimmed daily and a record of trim kept. It was also judged for retail sales acceptability, taking into consideration the loss of turgidity, loss of bloom, loss of crispness and change of color, the produce being finally trimmed before being graded for acceptability.

"Table No. 2 shows the operating conditions of most interest to the refrigeration engineer and other results of these tests. Note particularly the differences between the refrigerant temperature and the fixture temperature for the various combinations in the top quarter of the table.

(Concluded on next page)

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Table 2 -- Results of Tests on Retail Cooler

x 8-Ft. Walk-In Cooler—Model AF-250—1/2-Hp. Condensing Unit

	Test No. 1 Forced Air Coil With Humidifier Basic Rating Not Known	Test No. 2 Forced Air Coil CO-620 Basic Rating 620	Test No. 3 Gravity Coil 2-WX-14B78 Basic Rating 256	Test No. 4 Gravity Coil Series Tubes 3-WX-14B78 Basic Rating 332	Test No. 5 Gravity Coil 3-WX-14B78 Basic Rating 384
Fixture Temperature	40° F.	40° F.	40° F.	40° F.	40° F.
Ambient Temperature	80° F.	80° F.	80° F.	80° F.	80° F.
Average Back Pressure (lbs.)	25	31	25	25	27
Temperature Difference	15° F.	7° F.	15° F.	15° F.	12° F.
Relative Humidity	81%	89%	86%	88%	90%
Head Pressure (lbs.)	120-125	120-125	120-125	120-125	125
Kwh per hour	.815	.325	.184	.182	.175
Test Run (hrs.)	70	66 1/2	69	69	67
Dehydration Loss of:					
Carrots—bulk	5.5%	5.45%	.57%	2.23%	.76%
Cauliflower	5.35	6.12	.91	None	1.6
Cabbage	3.33	3.7	1.35	1.58	1.13
Carrots—fresh	6.30	8.7	4.50	1.26	.91
Celery	7.3	7.3	3.86	2.74	4.12
Spinach	18.4	10.6	6.80	5.6	5.75
Apples	.31	.21	None	.17	None
Oranges	.49	.42	None	.65	None
Trim Loss of:					
Carrots—bulk	None	None	None	None	None
Cauliflower	None	None	None	.56%	None
Cabbage	9.75%	7.25%	.04%	.07	None
Carrots—fresh	10.9	.02	4.49	.32	None
Celery	49.3	3.05	4.15	None	None
Spinach	1.73	4.25	5.53	.46	None
Apples	.09	None	None	None	None
Oranges	.16	None	None	None	None
Acceptability of: (Based on trimmed merchandise only)					
Carrots—bulk	35%	75%	100%	90%	100%
Cauliflower	60	60	80	75	95
Cabbage	90	95	80	95	95
Carrots—fresh	50	85	70	95	95
Celery	50	65	70	80	90
Spinach	35	75	75	95	90
Apples	100	100	100	100	100
Oranges	90	95	100	100	100
Average Acceptability	64.3	81.2	84.3	91.2	94.3

\*After three days' test (load approximately 225 lbs. of fruits and vegetables).

removing field heat from products, and similar applications.

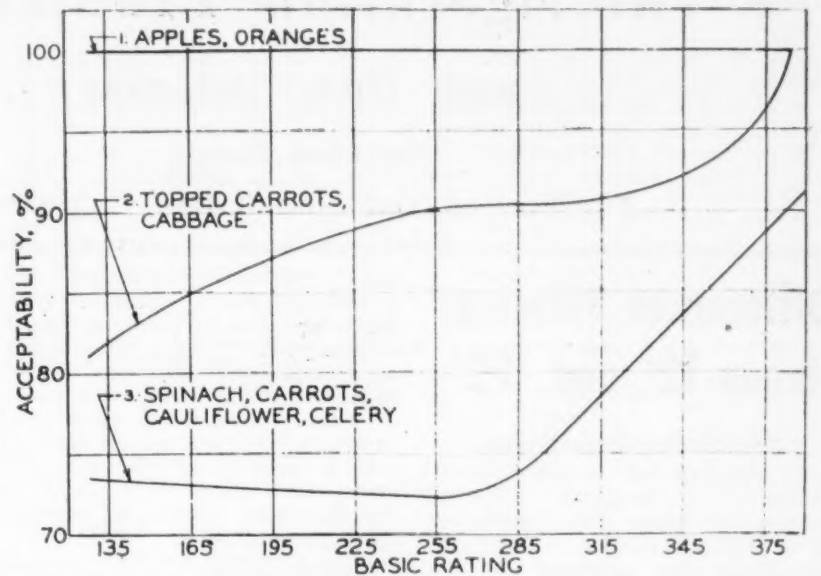
"Fig. 5 presents in graphical form basic rating versus acceptability obtained with some of the items tested. From the refrigerating engineer's standpoint, this indicates that for this particular application, the larger the coil surface and the smaller the temperature difference, the better the results obtained. From the food technologist's standpoint, the same conclusions can be drawn, plus the fact that apples and oranges are not so susceptible to deterioration; that topped carrots and cabbage are more susceptible; and that spinach, carrots, cauliflower, and celery are very susceptible.

"Interpreting these factors from the standpoint of over-all results, much more care is needed in designing systems for the last group of produce than for systems which deal with apples and oranges. If all varieties of produce shown are to be handled in the same fixture, the results indicate that the system probably should be designed to produce optimum conditions for the spinach, carrots, cauliflower, and celery.

"Returning again to the household refrigerator field, the 'combination' refrigerator is the latest development using the principles of moisture control which have been previously discussed. The upper compartment is for freezing and storage of frozen foods and ice cream, and for making and storing ice cubes. This compartment is refrigerated by the primary system as previously discussed. It is operated at near 0° F. and this provides long-time storage for frozen foods.

"Earlier models, due to operation at around 15° F., provided only a very limited storage period. It was

Fig. 5 -- Acceptability Varies with Coil Rating



often difficult to keep ice cream. Due to the lower temperatures employed, this upper compartment is insulated and completely isolated from the lower compartment, except through the secondary refrigeration system.

"The lower compartment is refrigerated by secondary tubing in the walls and floor. This provides 'moist' cold, the same as the 'Cold Wall' previously described. The 'dry' cold section is eliminated. Bottled goods, etc., can be kept just as well in the 'moist' cold as in 'dry' cold, temperature being the only requisite for their preservation.

"The large 'hydrators' in the bottom of the lower compartment operate the same and serve the same functions as in previous models. Re-

frigerant temperatures used are so high that moisture condenses on the top and side walls of the compartment, due to the opening and closing of the doors. The sloped dome-type top carries this moisture to the side walls and then subsequently to the floor.

"The floor contains a drain which removes excess moisture collected into a pan in the machine compartment. The heat from the machine compartment evaporates this moisture into the room air, eliminating emptying the drain pan. Thus, we have in one refrigerator storage facilities for household use providing conditions for perishables from frozen foods to the most delicate of vegetables."

## Suggestions Based on Retail Tests--

(Concluded from preceding page)

"In Test No. 1, the forced air cooling unit used operated at too wide a temperature difference, indicating lack of surface. The result of this shows up very plainly in deterioration of the produce stored. The humidifying device did not offset the wider temperature difference produced by this unit. Note also the increased operating cost.

### Improved Results

"The forced air unit used in Test No. 2 operates at a very small temperature difference. Improved results from the standpoint of food preservation were observed. Best results were obtained with the gravity units in Test No. 5. All of the gravity combinations used operated at smaller temperature differences than has been our general practice for this type of application. Note the dehydration loss after three days' test. It will be observed that dehydration losses in the over-all were larger for the forced air unit used in Test No. 1, despite the fact that this was equipped with a humidifying device.

"The results obtained from forced air unit No. 2 without the humidifying device and operating at a very small temperature difference were superior to that of unit No. 1. The results of the tests with the gravity units showed that the units with the largest basic rating, that is, using the maximum of coil surface possible to install in this fixture, produced the best results. Figure 3 shows the coiling used to produce best results in Test 5.

"The trim losses for these five tests show the same trend as the dehydration losses.

"The acceptability of the merchandise, what we are all aiming for, again shows the same trend.

"A new technique was tried in connection with the gravity units, namely, not using any drip pans under them, and allowing the drip during the defrosting cycle to drop onto the produce (See Fig. 4). It is felt that this procedure helped in maintaining freshness and preventing dehydration losses of most items. Time appears to be the deciding factor in using this method," pointed out McCoy.

"The practice of having defrost water drip on produce is to be looked upon with suspicion when long-time storage is involved. Snap beans are subject to fungus disease spread by water. Discolorations of small abrasions or bruises may also occur. Mushrooms, strawberries, and other fruits are subject to fungus rots that thrive best under excessively moist conditions. It would, therefore, appear

that for long-time storage, high room air moisture content should be obtained by small temperature differences between room temperature and refrigerant temperature, and drip from cooling units should be handled by drip pans.

"Since produce in the retail store is usually turned over in three days or less, experience has shown that for retail storage, this practice is permissible. Here, washing and sprinkling is customary. With many storage facilities now in use which have too dry storage room atmospheres, the free water will be absorbed as cooling unit frost, reducing the drawing of loosely bound water from the produce itself. Thus, better quality will be maintained.

"The conclusions which can be drawn from this group of tests are that the gravity cooling units produced better results for produce storage in a retail cooler than the forced air cooling units; that low temperature differentials between fixture temperature and refrigerant temperature produce better results for both types of units; and that with both types of units, the more coil surface installed in the cooler, the better the results.

### Role of Air Velocity

"In Test No. 2, and Test No. 5 we observed that the relative humidity produced is approximately the same with the forced air unit and the gravity unit, but that the results obtained insofar as preservation of the food is concerned, indicate better results with the gravity unit. The difference in velocity of air over the surfaces of the food apparently is responsible for this condition. Here again, may I warn about the danger of using fixture air relative humidity other than as a guide for reasons previously discussed.

"These data indicate clearly the need for research along the lines of optimum velocities allowable over the surfaces of various kinds of foods. Notice that the results obtained with the different methods of coiling are not comparable with the individual items of foods. I also want to warn against generalizing from the results obtained in this work," he cautioned.

"Drawing a careless generalization from this work might lead to the conclusion that gravity coils are superior to forced air coils. For this particular application, this is a correct conclusion, but there are many applications of refrigeration in the food field where forced air coils, if properly utilized, based on present-day knowledge, will give superior results. This is particularly true in



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by **KRAMER**

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5. Where extra condenser capacity is required in an existing system.
6. For combination air-and-water cooled systems in an existing water cooled system.



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## Refrigeration Problems

### and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

## Differences Between 'Freon-12' and '22'

### (Concluding Instalment)

In changing over a system from "Freon-12" to "Freon-22," the compressor and motor will probably be the first considerations; but there are others—the condenser for example. If the compressor displacement is retained, and its capacity raised about two thirds in changing from "Freon-12" to "Freon-22," this two thirds additional capacity will have to be accommodated by the condenser, too. If the compressor pumps more gas (which it will have to do in order to give greater capacity) that additional gas will have to be cooled and condensed in the condenser.

Originally, the condenser was chosen for "Freon-12," and for the capacity obtained from using "Freon-12." In choosing it, the manufacturers undoubtedly made some allowances for overload as a safety factor, but certainly they did not put on a condenser that was two thirds oversize.

If the condenser is an air-cooled

one, it was chosen on a basis of a temperature rise of about 35° when the compressor is delivering maximum capacity. That is, the condensing temperature (the temperature in the "Freon-12" temperature-pressure table corresponding to the head pressure) with the system running with a full load will be about 35° above the temperature of the air to the condenser, which is normally room temperature.

If an additional two-thirds load is thrown on the condenser, its temperature will have to rise about 10° or 15° more than 35°, to enable the condenser to dissipate the additional two thirds heat. Ten or 15° additional condensing temperature means a head pressure for "Freon-22" of about 60 p.s.i. higher than would be normal for the room temperature.

This will result in a rather high head pressure, for even normally "Freon-22" runs a higher head pressure than "Freon-12," at the same room temperature, load, and evaporator temperature and with the right size condenser in each case.

For example, with "Freon-12," the head pressure in a 90° room has been 169 p.s.i.g., corresponding to a condensing temperature of 125°, a rise of 35°. This is with an air-cooled machine designed for "Freon-12."

Under identical conditions, an air-cooled machine designed for "Freon-22" would have a head pressure of 280 p.s.i.g.

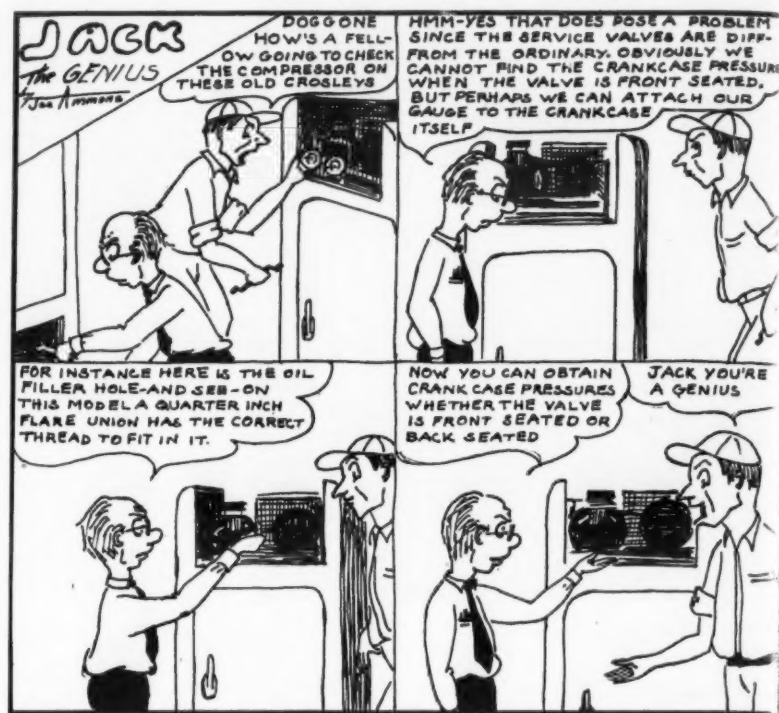
### HIGH HEAD PRESSURES WITH "FREON-22"

Let us take the "Freon-12" machine, blow out the "Freon-12," recharge it with "Freon-22." We keep the same compressor speed (therefore the same displacement) and the same condenser, but we put on a larger motor and a different expansion valve for "Freon-22." Now, with "Freon-22" the condensing temperature will be about 149° instead of 125°, and the head pressure will be 338 p.s.i.g.

If we put on a larger air-cooled condenser—one that holds the temperature difference down to 35°, so that the condensing temperature will be 125° instead of 140°, the head pressure drops to 280 p.s.i.g.

Actually, the head pressure would not go as high as 338 p.s.i., for the rise of head pressure that would occur would reduce the pumping capacity of the compressor; so it would not actually increase two thirds in capacity with the two-thirds increase in displacement, for its efficiency will be reduced because of the increase in head pressure.

## 'Jack the Genius... Solver of Service Problems'



"Jack the Genius... Solver of Service Problems" is a new cartoon character who will appear in the News from time to time. Readers with an interest in service problems will find both entertainment and education in this series, drawn by Joe Ammons, veteran of 15 years in refrigeration work, and at present service manager for an ice cream company in Amarillo, Tex.

Moreover, a condenser that is designed and built for "Freon-12," is made only structurally strong enough for the pressures expected from "Freon-12," which rarely run above 200 p.s.i.g. Even with the safety factor, it is unlikely that it would be as strong as it should be for "Freon-22" pressures, and a considerably high percentage of leaks could be expected.

So if an air-cooled unit is being changed from "Freon-12" to "Freon-22," it is advisable to exchange the condenser for a larger one. Or, if feasible, a water-cooled condenser could be put on to replace the air-cooled one. Another way would be to keep the air-cooled condenser and add a small water-cooled condenser as described in the Aug. 8, 1949 issue of AIR CONDITIONING & REFRIGERATION NEWS.

This could be a small water-cooled condenser or it could consist of a large heat exchanger. In either event, the auxiliary water-cooled condenser or heat exchanger should be put between the compressor discharge and the inlet of the air-cooled condenser.

### GREATER POSSIBILITIES WITH WATER-COOLED UNITS

If it is a water-cooled unit being changed from "Freon-12" to "Freon-22," there is much more probability that the same condenser could be used, particularly if comparatively cool condensing water is available, say 70° or less in the summer, and provided that there is enough water pressure to push the additional water through.

The operating condensing temperature would have to be set somewhat higher than before the change-over, which will result in higher outlet water temperatures and higher head pressure than would be normal, but a very considerable increase in capacity can be obtained. Probably not the full two thirds, unless the water is very cool, but an increase of one half is not improbable.

The water valve will probably have to be replaced, for not only must it be able to handle the increased volume of water but it must also be adjustable to the higher pressures resulting from "Freon-22," and not many water valves on "Freon-12" units are adjustable to the higher pressures.

If the unit is equipped with a high-pressure cut-out, as all water cooled and most air-cooled units over 1 hp. are, it will probably have to be replaced also, for it is not likely that it will be adjustable to the higher pressures resulting from the use of "Freon-22."

This also applies to the dual temperature and dual pressure controls, that include a high-pressure cut-out with a temperature control or a low-pressure control in the same case, or integral with the control.

### LINE SIZES ABOUT THE SAME

The liquid line will probably not have to be changed. At the same capacity and under the same conditions, "Freon-12" circulates about a 25% greater volume of liquid than "Freon-22," so unless the liquid line was only just barely large enough (or too small) for the "Freon-12," it will probably serve for the system after the change-over.

(Concluded on next page)

### OUR SECRET IS too good TO KEEP



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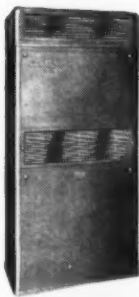
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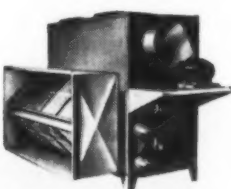
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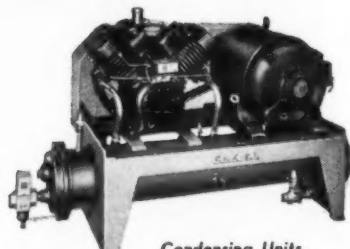
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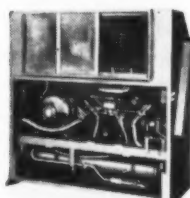
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## Differences Between 'Freon-12' and '22'

(Concluded from preceding page)

However, it will be advisable to install a sight glass in the liquid line near the evaporator. If, when the unit is fully charged, bubbles appear in the sight glass, a check should be made to determine if the bubbles are caused from too high a rise in liquid line or some other cause, before it is decided to change to the next larger size tube for the liquid line.

Since the compressor displacement remains the same, the volume of "Freon-22" suction gas will be the same as for the former "Freon-12." There is not enough difference in viscosities of "Freon-12" and "Freon-22" to materially affect the size of the suction line.

### THE EVAPORATOR PROBLEM

The evaporator may have to be changed. If the same one is used, it has the same amount of surface as before. There is not enough difference in the rate of heat transfer of the two refrigerants to materially affect the capacity, so even though the compressor capacity is increased, a larger motor is used, and the condenser either replaced or supplemented with additional surface, the evaporator will be the bottleneck.

If it is asked to handle greater capacity it can only do it by increasing the temperature difference between it and the air, and to do this it simply drops its operating temperature. This, in turn, decreases the compressor capacity (as the suction pressure goes down) until somewhere their capacities become the same and the evaporator temperature goes no lower. So the evaporator capacity may prevent advantage being taken of the increased capacity of the rest of the system.

Moreover it may be an installation on which the evaporator temperature must not be any lower, such as a water-cooling job; or it may be a self-defrosting cycle and the lower evaporator temperatures would make it difficult to get proper defrosting.

If the compressor is slowed down after "Freon-22" is put in, the same motor can be used and also the same evaporator. There will be little or no difference in capacity if the evaporator temperature remains the same, although of course, the operating pressures, both suction and head, will be higher. There will be little difference in power consumption.

### EXPANSION VALVE MUST BE CHANGED

If the "Freon-12" is fed to the evaporator by a thermostatic expansion valve, a capillary tube or a low-side float valve, it will have to be replaced by one suitable for "Freon-22." If an automatic expansion valve is used, it can probably be made to serve with "Freon-22," by re-adjusting it to a higher pressure corresponding to the evaporator temperature. A high-side float would probably work satisfactorily without any change or adjustment.

### OIL AND "FREON-22"

Since oil and "Freon-22" tend to separate and stratify to a greater extent than is true in the case of oil and "Freon-12," it is not necessarily true that an evaporator that has proper oil return for "Freon-12" will properly return oil if the same evaporator is used with "Freon-22." In general, however, evaporators that are designed for "Freon-12" are usable with "Freon-22." Care must be exercised nevertheless, with the so-called "pot-type" evaporators, that do not have continuous tubing and have accumulators, headers (especially on the outlet end), etc.

### TEMPERATURE AND PRESSURE CONTROLS

Obviously, there is no difference in the temperature controls used with "Freon-12" and "Freon-22," if there

was no change in operating range when the change-over was made.

Also it is likely that the low-pressure control will not have to be replaced, although it will have to be reset for the higher suction pressures with "Freon-22." For example; a low-pressure control setting for "Freon-12" to result in an average evaporator temperature of 0° F., would be approximately 18 p.s.i.g. cut-in, and 8 p.s.i.g. cut-out. For "Freon-22" a corresponding setting for a zero evaporator would be 36 p.s.i.g. cut-in and 22 p.s.i.g. cut-out.

### SUMMARY—ADVANTAGES AND DISADVANTAGES

There are times when it may be practical and desirable to change an installation from "Freon-12" to "Freon-22," but ordinarily there is so little to gain by doing so that it is not worth the labor and material.

If there is to be a gain in capacity, a larger motor must be used, and care must be taken that the compressor does not become over-heated. There are the added possibilities of leaks and seal trouble.

The condenser capacity will have to be increased in some way, or it will have to be replaced with another, larger condenser. The evaporator may have to be replaced; but if it is not, lower evaporator temperatures may be expected.

The water valve and the expansion valve will have to be replaced, and probably the high and low-pressure controls. It may be found that the additional cost of doing these things will not be warranted by the advantage in capacity gained.

If the compressor is slowed down and the same motor, condenser, and evaporator retained, the water valve, expansion valve, and high-pressure cut-out will still have to be changed. The only advantage of any consequence, would be a higher suction pressure for the same evaporator temperature. This will rarely show enough economy or advantage except in low and ultra-low temperature applications, to warrant making the change.

### S. D. Clarke, Jr. Appointed Kerotest Purchasing Agent

PITTSBURGH—S. D. Clarke, Jr., has been named purchasing agent of Kerotest Mfg. Co. He has been with the valve manufacturing firm since 1942.

Clarke replaces E. T. Adams, who has been appointed district manager of the Houston sales territory.

### Self-Pressure Torch Introduced by Turner

SYCAMORE, Ill.—A new, half-pint, self-pressure torch—complete with many big torch features—is being introduced by Turner Brass Works here.

Designated as the No. 59 for gasoline and No. 60 for alcohol, the torch is genuinely practical for a wide variety of indoor home uses, light shop work, or hobbycraft work. It is complete with soldering iron rest and windshield.

The high-polished, heavy-gauge brass tank of this new model is 3½ in. in diameter—a feature which minimizes tipping. The tank holds 7½ oz. of fuel and the torch will burn 3½ hours at 1,700°.

### Riley Gets Murray Sales Post

DETROIT—The appointment of Graham Riley as regional sales manager for the home appliance division of the Murray Corp. of America has been announced by the company here.

Riley's territory comprises lower Michigan, Indiana, Kentucky, Ohio, and parts of New York, Pennsylvania, West Virginia, Virginia, and Illinois.

## Air Conditioning Corp. Organized as Contractor

LOUISVILLE, Ky.—The Air Conditioning Corp., capitalized at \$50,000, began operations here March 1. The new firm will operate as an air conditioning installation contractor.

Formerly the Air-Conditioning Div. of The Brandeis Machinery & Supply Co., it is located at 201 Warnock.

Brandeis Machinery & Supply is the major stockholder in the new corporation, which is headed by James R. Allen as president; Neil Skillman, vice president, and W. J. Davis, secretary-treasurer.

Allen was formerly chief engineer in Brandeis' Air Conditioning Div.; Skillman was serving as foreman, and Davis as sales manager.

## M. F. Knirsch Heads N. Y. Commercial Group

POUGHKEEPSIE, N. Y.—At the annual meeting of the Hudson Valley Refrigeration Association, the following officers were elected:

M. F. Knirsch, K & K Conditioning, Inc., Newburgh, N. Y., president; D. E. LaBarr, D. E. LaBarr Lumber Co., Port Jervis, N. Y., vice president; Ed Stoll, Electric Products Co., Poughkeepsie, N. Y., secretary; L. Platt, C. B. Strain & Son, Poughkeepsie, treasurer; and R. Caro, Sullivan County Refrigeration Sales, Monticello, N. Y., director.

One of the aims of the association is to build up the standards of refrigeration service by the dealers to better serve the customer.

## All-State Issues Handbook On New Welding Products

WHITE PLAINS, N. Y.—Complete data on several new products is presented for the first time in a revised edition, just published, of the 32-page, pocket-size combination low-temperature welding handbook and catalog offered by All-State Welding Alloys Co., Inc., of 273 Ferris Ave., here.

This illustrated booklet lists all the All-State rods and fluxes, including several new items. It contains tables of characteristics, full application information, and helpful hints of general interest to workers in the metal-joining industries.

It also lists many new products of general interest to the trade.



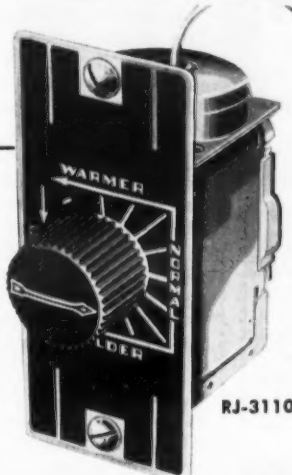
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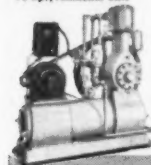
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### Roger Pfaff Switches to Air Conditioning

## 'No Cooling, No Judge' Decision Brings About \$9,500 Contract To Provide Comfort Cooling for Los Angeles Traffic Building

LOS ANGELES—To air condition or not to air condition?

That question made Los Angeles' new traffic courts building at Eighth and Wall Sts. the center of attraction to the local public at late. The new structure was built to house the various traffic courts, including the nationally-known Judge Roger Pfaff and his court.

The judge visited the building, consulted building figures and information, and then informed the City Council he would not move into the new building until adequate ventilation or air conditioning was installed. The judge called the place a "Black Hole of Calcutta," and said an outside temperature of 84° meant an inside temperature of 92°.

The City Council at first refused to do anything, at which point the usually genial judge let his personal air conditioning system go hot and told the Council to get another judge to move in the building. City Attorney Chesebro backed the good judge and said he wouldn't move either until air conditioning and better lighting were installed.

As Judge Pfaff is recognized as one of the foremost traffic court judges in the country and is directly responsible for the cut in the Los Angeles auto death rate, the City Council and the boards of Superiors and Public Works decided the city needed the judge. So a contract for \$9,500 was

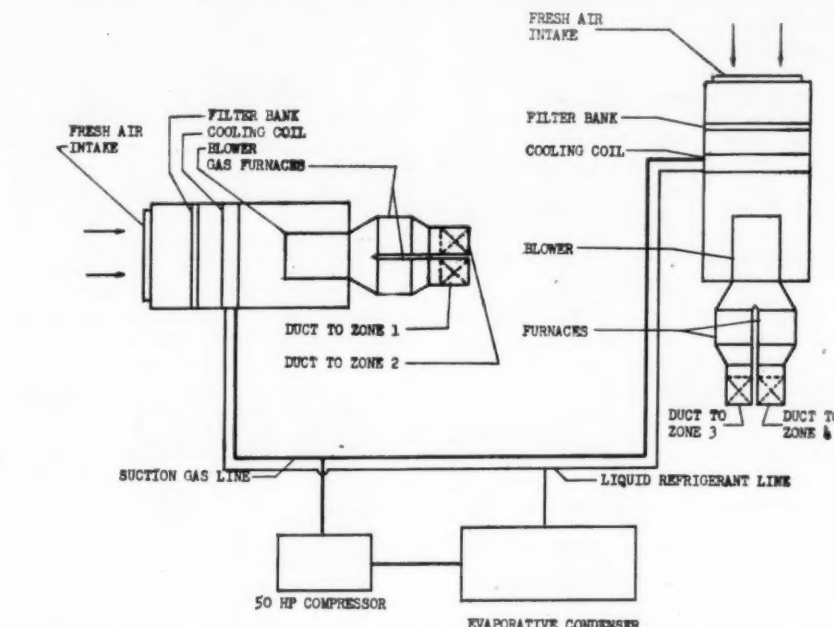


Diagram showing layout of air conditioning equipment in Los Angeles court building.

awarded to C. G. Hokanson Co. to provide the needed air conditioning.

Advantage was taken of existing facilities wherever possible. There were two separated fan systems of approximately 10,000 c.f.m. capacity each. Each fan system was split into two major zones with a separate

Hayes stainless steel duct furnace on each zone.

New equipment included one CM 124J 50-hp. General Electric compressor unit; four 66 x 30 x 4 row direct-expansion General Electric cooling coils operating with "Freon-12"; one WRM-11 Drayer-Hanson evaporative condenser and receiver.

All equipment is installed on the roof to facilitate service and maintenance, so there is none of the usual running from basement to roof or vice versa as in many jobs.

Practically all air used is fresh air supplied by the fan systems. A small amount of used air is recirculated due to previously installed air escape ducts which lead from the various rooms to tie in with the main air intake. However, this is normally a very small amount and the system is primarily a fresh air system.

A Fiberglass filter coated with a viscous oil cleanses the incoming air. When this disposable type filter becomes dirty or clogged, it is easily removed and replaced.

Cost of condenser water is held to a minimum by use of a pump which recirculates the condenser water so the only water loss is evaporation.

Existing blowers and furnaces were utilized to give four thermostatic control points in the courtrooms. Expense was held to a minimum again by converting the already installed two-stage Minneapolis-Honeywell thermostats to heating and cooling thermostats.

Temperature control is obtained by use of the reheat principle. Thus if cooling is on for one of the two zones of a fan system and the other zone becomes satisfied, the duct furnace will turn on to re-heat the cooled air of the zone that does not require cooling.

## Kaufman's Store To Get Central System

PITTSBURGH—The first central station air conditioning system in the world for a mercantile firm—a major feature in a \$2,000,000 modernization program—is being installed at Kaufman's department store here by Carrier Corp.

Replete with innovations, the air conditioning system does not take up a single square foot of existing usable floor space in sales, storage, or business office areas.

The current project covers complete temperature and humidity control for 12 floors, augmenting an air conditioning system previously installed for the basement and first floor.

All air conditioning machinery, which includes large capacity Carrier centrifugal refrigeration machines, dehumidifying apparatus, filters, fans, etc., is located in a new penthouse now under construction on the roof of the store building.

A new cooling tower, as well as an 11,000-volt network electrical substation, are also being installed on the roof adjacent to the new penthouse. Through the cooperation of the Duquesne Light Co., this is the first electrical installation of this type in Pittsburgh.

There will ultimately be a total of 1,650 tons of refrigeration capacity.

Since all of the mechanical equipment is concentrated in one room atop the building, maintenance costs are greatly reduced as compared with the more conventional department store air conditioning systems using multiple apparatus widely scattered throughout the store.

Conditioned air, cleaned, cooled, and dehumidified, at a rate up to 400,000 c.f.m., is distributed throughout the store by a system of small, streamlined ducts which blend into the existing ceiling construction. There are no moving parts within business areas in any part of the store.

Use of small ducts obviated any alterations in the existing location of lights or sprinkler heads, thus effecting a substantial saving in installation expenditures.

Air conditioning outlets—served by supply ducts in every bay of the store—are readily adjustable to provide any required air quantity to meet shifting loads so frequently encountered in mercantile establishments due to the moving of departments.

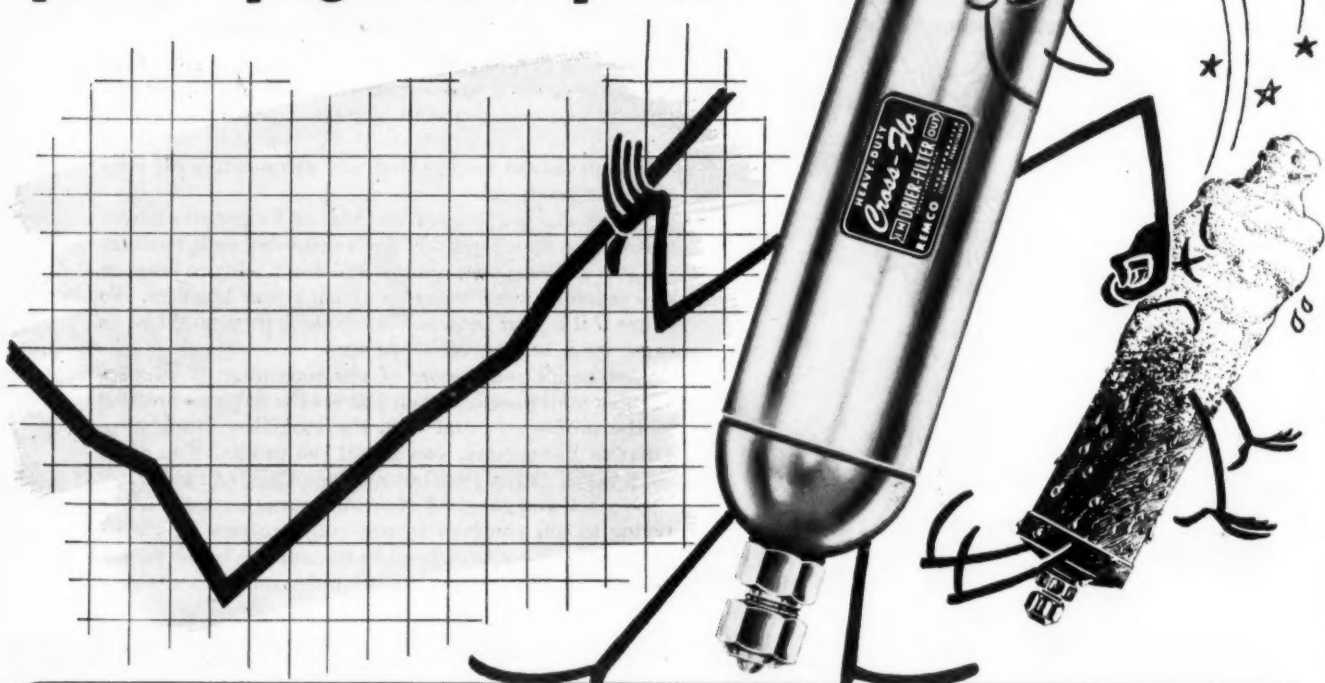
One of the largest installations of electrostatic filters in the world for any air conditioning system is employed to effectively remove dust and other foreign matter from all of the air supplied to the store.

Air will be supplied to and returned from the various floors through four elevator shafts located in the approximate center of the store. These shafts were made available for this purpose after a survey revealed that 16 new high-speed automatic elevators, which are now being installed in the modernization program, will give better service.

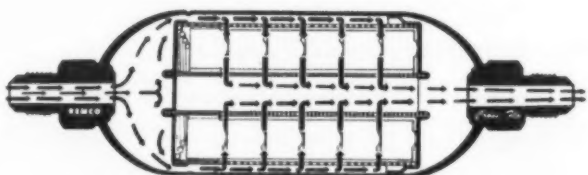
By eliminating clogged driers and expansion valve freeze-ups . . .

# "Cross-Flo"

## pulls up greater profits!



### Here's the Reason—



Cross-Flo capacities: 1, 2, 3, & 5 tons.  
Connection sizes: 1/4" thru 3/4" SAE; 3/8" O.D. SWT.

Yes . . . you can eliminate all losses from breakdowns and definitely count on greater profits when you use these Heavy-Duty "Cross-Flo" Drier-Filters. For now, with Molded DuCal Drierite as the drying agent, you get the highest-possible efficiency even at liquid temperatures up to 150°. The secret is in our exclusive "Cross-Flo" construction, wherein the refrigerant flows across and between the self-spacing discs of Molded DuCal Drierite—which are positively guaranteed to remove and retain moisture even at high liquid temperatures and down to extremely low dew points. Thus, you can count on prevention of refrigerant control freeze-ups even in the lowest temperature installations.

Send for Literature and Prices

CARRIED IN STOCK BY LEADING WHOLESALEERS EVERYWHERE  
West Coast warehouse stock at: 2103 So. San Pedro, Los Angeles, Calif.  
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FOR THE REFRIGERATION & AIR CONDITIONING INDUSTRY

DIVISION OF BUSINESS NEWS PUBLISHING CO.  
450 WEST FORT STREET, DETROIT 26, MICHIGAN



## Small and Large Refrigerators Added by Harvester



This is International Harvester's 7.6-cu. ft. refrigerator which provides full-family storage capacity in a cabinet actually taking less than 25 x 29 in. of floor space. The full-length door design increases storage area to almost twice that of old-style refrigerators of similar outside dimensions. Convenient features include frozen food storage, covered crisper, 14.5 sq. ft. of adjustable shelf space, and built-in bottle opener.



The "place and space" for dozens of small jars, bottles, and packages, for bulky foods and 12 or more quart bottles is provided in the new International Harvester 9.2-cu. ft. model with Pantry-Dor. A full-width freezer for 50 lbs. of frozen foods, big fresh meat drawers, two covered crispers, and stainless steel shelves with double-height space for 12 or more quart bottles and bulky foods make foods easy to store, easy to find.

## Emil F. Skarda To Head Harvester Refrigerators -- Reco International Div.

PHILADELPHIA — Refrigeration Engineering Corp. has announced the appointment of Emil F. Skarda as manager of its Reco International Div.



E. F. Skarda

Skarda comes to Reco with a strong background in international trade. He has been, until recently, export manager of Wilson Refrigeration, Inc. and has had world wide experience establishing a network of distributors.

Skarda has traveled widely abroad, as a special export consultant of the War Assets Administration, as export manager of Wilson Refrigeration, Inc., and as an officer of the Armed Forces assigned to Military Government duties.

He is a member of the Air Conditioning and Refrigeration Advisory Board of the Office of International Trade, and committee chairman of the Refrigeration Equipment Manufacturers Association.

Skarda's duties at Reco concern themselves with organizing distribution channels for Reco ice makers, commercial block ice plants, prefabricated sectional walk-in freeze coolers, etc.

(Concluded from Page 1, Column 3) Dor," is a deluxe extra-feature refrigerator in every detail. It introduces "on the door" storage to the International Harvester line.

The Pantry-Dor has four wide shelves on its inner side, each specifically designed for items to be stored. The top shelf is "pocketed" to hold 16 eggs, while the second shelf, widely spaced due to the extra length of the door, holds 8 to 10 soft drink or other tall bottles.

Two more shelves—one designed for dairy products—provide "right in sight" storage for almost two dozen small jars, bottles, and packages needed in everyday meal preparation. Refrigerated from top-to-floor, the entire interior of the model H-92 is utilized to provide a capacity of 9.2 cu. ft. in minimum floor space. A full width freezer has capacity of 50 lbs. of frozen food, and is equipped with 4 lever-release ice trays.

A full-width crisper across the bottom and another large standard crisper provide over 23 qts. capacity. A separate meat tray holds almost 11 lbs., and may be stored in the large freezer.

The shelves are of stainless steel and provide a total shelf area of 18½ sq. ft., not including the shelves on the door.

With the addition of the two new models, the International Harvester line now includes a total of six models at six different prices and in six different sizes.

## Saving Drugstore Profit --

(Concluded from Page 1, Column 4) traded items.

Wood said the association is determined that retail drug chains will cease treating the fountain as a stepchild.

A recent survey of the group showed that fountain sales account for one third of the gross profit of the average retail drugstore, reported E. D. McDaniel, executive secretary of the organization. Wood also reported individual fountain items have the highest gross profit margin of any merchandise stocked by retail drugstores.

## Trane Co. Notes Slight Dip In 1949 Earnings

LA CROSSE, Wis. — The Trane Co.'s consolidated net income for 1949 was \$1,707,231, equal to \$5.69 per common share outstanding. This compares with \$1,832,328 and earnings of \$6.11 per share in 1948.

Book value of the capital investment was \$31.30 per share on Dec. 31, 1949, compared with \$27.86 at the close of 1948. Favorable operating results and substantial reduction of inventories made possible retirement of \$1,000,000 in notes payable to banks, the company's only outstanding borrowings, during 1949.

## Rochester, N. Y. Dealer Opens

ROCHESTER, N. Y. — The Ridge Lumber Co., 612 Hollenbeck St., has opened a new store which features a complete line of major appliances.

**ACME PRODUCTS**  
Serving THE REFRIGERATION INDUSTRY Since 1919

**Specify Acme For Top Performance**

- FREON SHELL AND TUBE CONDENSERS
- DRY-EX WATER CHILLERS
- HI-PEAK WATER COOLERS
- FREON SHELL AND COIL CONDENSERS
- HEAT EXCHANGERS OIL SEPARATORS
- INDUCED DRAFT COOLING TOWERS\*
- EVAPORATIVE CONDENSERS
- LIQUID RECEIVERS
- BLO-COLD INDUSTRIAL UNIT COOLERS
- PIPE AND FIN COILS
- AMMONIA CONDENSERS

\*A new Acme product with outstanding features. Write for Catalog No. 40

**ACME INDUSTRIES Inc.**  
JACKSON • MICHIGAN

**OUR SECRET IS too good TO KEEP**

WATCH for our ad in the next issue of Air Conditioning & Refrigeration News

**THE PUNXSUTAWNEY COMPANY**

## Dealers! Servicemen!

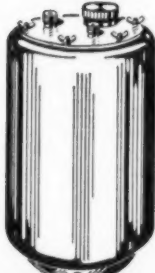
# Big Profits

## IN BASTIAN-BLESSING'S BEVERAGE DISPENSING EQUIPMENT

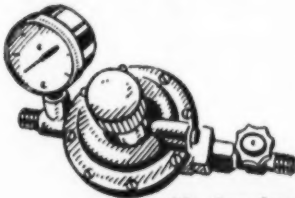
QUALITY BUILT!  
TIME TESTED!  
FIELD PROVED!



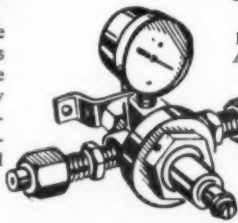
**Mixing Head Draft Arms**—Permit any desired combination of carbonated and plain water beverages; self-closing, non-leaking faucets. Furnished in several styles of heads and shanks.



**Syrup Tank**—Made of heavy stainless steel, with large cover for fast, easy cleaning and inspection. Horizontal or vertical models.



**CO2 Regulator for Syrup Tanks**—Accurate within ounces, not pounds. Non-creeping. Adjustable for pressure on syrup tanks.



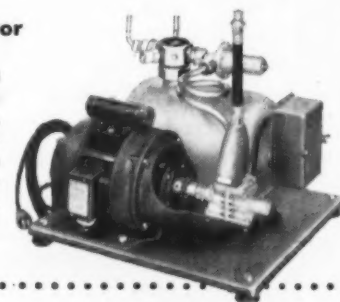
**Water Pressure Regulator**—Assures uniform proportioning of water and syrup.

## The Secret of Taste-Tempting BEVERAGES at Low Cost!

Today it's easy to please your customers, build your reputation, and increase your earnings—all at the same time! That's because, available to you, are component parts for beverage dispensing systems manufactured by Bastian-Blessing. Designed for use in custom-built installations, or as replacements for obsolete parts, this equipment is backed by 42 years of experience and fair dealing. Service and parts assured indefinitely; engineering advice and assistance at your command. Mail coupon for full details.

### Sensational New EXCELALL Carbonator

Delivers over 50 gallons of taste-tingling soda water per hour. Light, compact, easily mounted anywhere. Exceeds capacity of units twice its size. A real profit-maker!



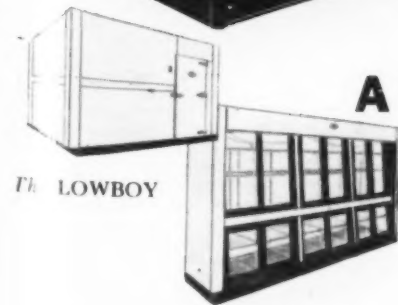
## Here's The Lowboy® WITH RD FRONT



a bulk-storage walk-in cooler and self-service merchandising unit

## ALL IN ONE!

DEALERS: Write for information about our dealer franchise... a profitable representation for wide-awake dealers who can handle the full WARREN LINE. Address WARREN LINE, Dept. 509.



The LOWBOY

**THE WARREN COMPANY, Incorporated**

P. O. Box 1436

Atlanta 1, Georgia

## The BASTIAN-BLESSING Company

4245 West Peterson Avenue, Chicago 30, Illinois

Gentlemen: Please send your folder C-219 on the new EXCELALL Carbonator and your folder D-19 on Beverage Dispensing System Parts.

Name.....  
Address.....  
City.....State.....

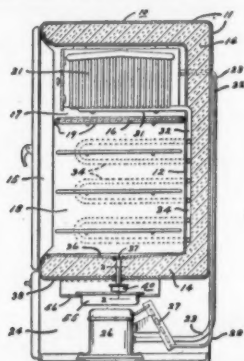
WHEN ONLY THE BEST WILL DO — BUY BASTIAN-BLESSING



# PATENTS

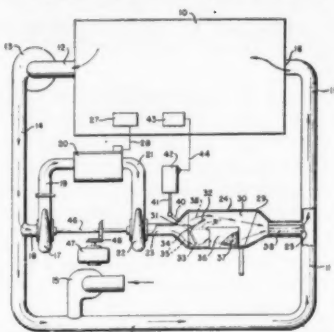
Week of October 18  
(Continued)

2,485,115. REFRIGERATING APPARATUS HAVING CONDENSATE COLLECTING MEANS. Orson V. Saunders, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application July 19, 1946, Serial No. 684,956. 6 Claims. (Cl. 62-103.)



1. The combination of a refrigerating apparatus including a cabinet, a food storage compartment within said cabinet, means for cooling said compartment and at times causing moisture to condense out of the air therein, a drain pipe extending through a wall of said compartment for conveying the condensate water to the exterior thereof, and insect excluding means associated with the lower end of said drain pipe receiving condensate water therefrom and sealing said end of said drain pipe when water is present therein and also sealing said end of said drain pipe when devoid of water to at all times block the passage of insects into said food compartment, said insect excluding means comprising an open-top condensate collecting receptacle, said lower end of said drain pipe projecting a substantial distance into said receptacle through the open top thereof and adapted to form with water contained therein a seal for said pipe, a closure member normally sealing the open top of said receptacle, the closure member being movable upwardly relative to said receptacle in response to a predetermined accumulation of water therein to permit the water to overflow same, said closure member surrounding said pipe and having its movement guided thereby.

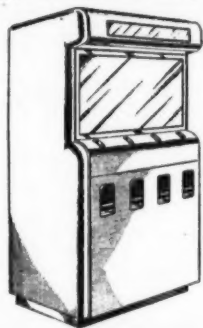
2,485,522. HUMIDITY CONTROL IN AIRCRAFT AIR CONDITIONING. Soren K. Andersen, Los Angeles, Calif., assignor to The Garrett Corp., Alhambra, Calif., a corporation of California. Application Sept. 4, 1945, Serial No. 614,323. 13 Claims. (Cl. 236-44.)



7. In a cabin air conditioning system having means for circulating air, the combination of: means for passing a first flow of air into the cabin; means for compressing a second flow of air; a cooling means; means for passing the compressed air through said cooling means to cool the same; means for reexpanding and further cooling the compressed, cooled air; means for removing moisture from only a part of the reexpanded air; and means for delivering said second flow of air into said first flow of air.

## DESIGNS

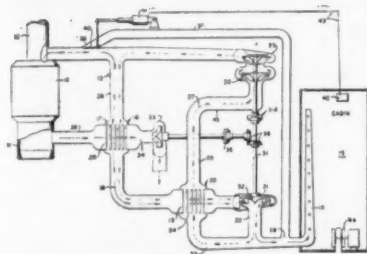
155,634. DESIGN FOR A VENDING MACHINE CABINET. Eldridge H. Smiley, Rosemead, and Frederick K. Storm, Jr., Los Angeles, Calif., assignors, by mesne assignments, to Kold-Krisp Apple Service, a corporation of California. Application Aug. 11, 1947, Serial No. 140,820. Term of patent 14 years. (Cl. D52-3.)



The ornamental design for a vending machine cabinet, substantially as shown and described.

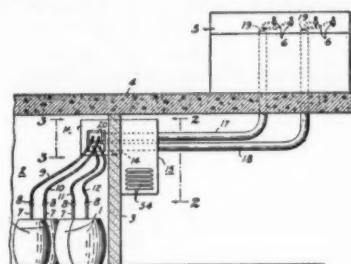
## Week of October 25

2,485,590. COOLING SYSTEM FOR COMPARTMENTS USING EXPANSION ENGINE MEANS. Frederick H. Green, Los Angeles, Calif., assignor to The Garrett Corp., Los Angeles, Calif., a corporation of California. Application Oct. 4, 1946, Serial No. 701,244. 23 Claims. (Cl. 62-138.)



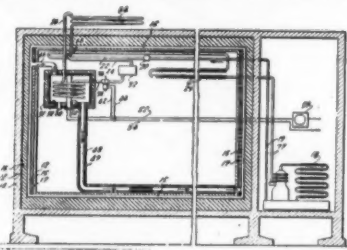
1. In a mechanism for use in a system, employing heat exchange means for cooling the atmosphere of a compartment from a source of gaseous fluid under pressure, the combination of: means forming a path of flow of gaseous fluid from said source to said compartment, said means including the cooling passes of said heat exchange means and a gaseous fluid driven work extraction engine; means for directing a coolant through the coolant passes of said heat exchange means; and recirculating means for returning to said path of flow ahead of said engine a portion of the cooled gaseous fluid which has passed through said engine, said recirculating means including pumping means driven by said engine for compressing the recirculating gaseous fluid so that it will pass back into said path of flow.

2,485,610. BEVERAGE STORING AND DISPENSING SYSTEM. Wallace R. Kromer, Cleveland Heights, Ohio, assignor to Superflow Mfg. Corp., Cleveland, Ohio, a corporation of Ohio. Application April 16, 1947, Serial No. 741,827. 2 Claims. (Cl. 62-141.)



1. In a beverage storing and dispensing system of the type having a dispensing bar and a walled storage room remote from the bar with beverage containers in the storage room and beverage lines extending through an opening in one of the walls of the room and connecting the containers to the bar, the improvement which comprises the combination of a conduit for enclosing the beverage lines and a refrigerating device for cooling the room and the lines, said device including a cabinet structure adapted to be mounted on the outside of the storage room over the opening in the wall thereof to serve as a closure for such opening and the line enclosing conduit extending into the cabinet, means in the cabinet for circulating a liquid coolant through the conduit, passage means in the cabinet for circulating air through the same from the room, and means in the cabinet for refrigerating the circulating liquid coolant and the circulating air.

2,485,630. COLD STORAGE ROOM ARRANGEMENT HAVING MEANS FOR CONTROLLING THE MOISTURE CONTENT IN THE INSULATION. Carl Georg Munter, Stockholm, Sweden. Application Feb. 27, 1947, Serial No. 731,253. In Sweden March 1, 1946. 13 Claims. (Cl. 62-6.)



1. A cold storage room comprising walls having inner and outer spaced wall surfaces, heat insulating material confined between said wall surfaces, there being a passage for flow of air between said wall surface in diffusion connection with said insulating material, conduit means connected to said passage for supplying air thereto, means in a portion of said conduit means to cool said air below the freezing point of moisture entrained therein whereby ice is formed in said portion, and means operative at intervals to melt said ice.

2,485,646. INSULATED CONTAINER STRUCTURE. Glenn H. Norquist, Jamestown, N. Y. Application June 23, 1945, Serial No. 601,214. 14 Claims. (Cl. 220-9.)

## WANTED

### Air Conditioning Products

#### Research Man

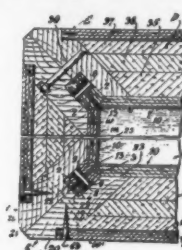
Responsible for development of Air Conditioning Product Line for large national manufacturer.

#### Qualifications

Age about 35 to 45. Engineering Degree. At least 5 years experience in Automatic Heating and/or Air Conditioning Product Research. The man we want must be sales minded and preferably one who has wide acquaintance with utilities. Compensation commensurate with ability, experience and responsibility. Please submit detailed resume of experience and background prior to interview. Our people know of this ad.

Box 3437, Air Conditioning & Refrigeration News

1. An insulated container structure comprising an inner containing shell having structural strength adapted to resist and absorb substantially all the stresses and strains imposed upon the container, said inner shell being inclosed within an



insulating casing of high insulating value, said inner shell being formed of flanged metal clad panels, each of said panels comprising a fibrous base sheet cemented to a liner-forming metal sheet and presenting a wall section and laterally extending flange sections, the adjacent flange sections of adjacent panels being in substantially face-to-face abutment and providing a reinforcing framework for the shell, said insulating casing including a plurality of panel frames, each of said panel frames being formed by frame

members of low thermal conductivity fitting over the flange sections of each of said panels, the adjacent frame members of adjacent panel frames having face portions in substantially face-to-face abutment, a groove formed in said adjacent frame members snugly receiving the adjacent paired flange sections of adjacent panels, and means for securing adjacent frame members of adjacent panel frames together.

(To Be Continued)

## WANTED DISTRICT SALES REPRESENTATIVE

For Illinois, Indiana, Wisconsin by Refrigeration Equipment Manufacturer, established line for just 20 years. Must be experienced in jobber and manufacturer contacts.

Box 3420, Air Conditioning & Refrigeration News

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

### POSITIONS WANTED

CAREFULLY SELECTED group of trained men, graduates of reliable and well established trade school now available to fill positions in the radio or refrigeration field. Willing to travel anywhere. Why not fill that vacancy with an efficient and reliable man? Write EASTERN TECHNICAL SCHOOL, 888 Purchase Street, New Bedford, Mass.

DO YOU have a help problem? Let us solve yours. Select from our graduates the man qualified to handle your work. We have men available for all parts of the country, who have completed 34 weeks of practical shop refrigeration and some who have also completed our practical advanced training course in air conditioning. Many are very well qualified. THE ST. LOUIS SCHOOL FOR ELECTRICITY AND REFRIGERATION, INC., 6767 Southwest Avenue, St. Louis 17, Missouri.

SALES OR field engineering position wanted with manufacturer of refrigeration equipment or allied products. Sixteen years experience with nationally known manufacturers. Experience through actual installation and servicing of all types refrigeration. District sales engineer. Member of A.S.R.E. and R.S.E.S. BOX 3439, Air Conditioning & Refrigeration News.

HOUSTON OR Dallas, Texas, attention! Mechanic, 12 years experience in all phases of refrigeration and air conditioning, such as low-temp. cabinets, beer cooling equipment, walk-ins, locker plants; also capable of figuring heat loads for sales application on air conditioning. Age 37, married. BOX 3440, Air Conditioning & Refrigeration News.

### POSITIONS AVAILABLE

SALES MANAGER wanted to supervise and direct a crew of men selling food mart equipment. We represent C. V. Hill & Co., Carrier Corp., Columbus Show Case Co. and others. We have all the facilities for complete store installations. Live in Chicago, no traveling, salary and bonus. Write giving full qualifications. In strict confidence. LEE SHELL COMPANY, 1141 West Madison St., Chicago 7, Illinois.

TOP NOTCH sales engineer familiar with all phases of commercial refrigeration, "Freon," and ammonia wanted by aggressive York distributor. Give full information and past performance. Salary open. FRAWL ENGINEERING CORPORATION, 2820 Harney Street, Omaha, Nebraska.

ATTENTION "SMALL" appliance dealers: We want an aggressive man with appliance service experience to be our district manager in your territory. A man who wants to see the "lot" of the "small" dealer and appliance servicemen improved. See our ad this page, "Business Opportunities." Give us your background. TRIANGLE DISTRIBUTING COMPANY, 82 West Washington Street, Chicago 2, Illinois.

LEADING MANUFACTURER of air conditioning equipment wants aggressive sales engineer for Middle West. Ability to estimate and sell up to fifty ton installations required. Experience in setting up new distributors and working with established distributors necessary. Liberal salary and commission. Must travel. Write detailed experience and qualifications. BOX 3436, Air Conditioning & Refrigeration News.

EXPERIENCED SERVICE and installation manager. To manage service and installation of all types of ammonia and "Freon" equipment, including air conditioning jobs, irrespective of sizes. Must have ability to put service department on paying basis. Located in Louisville, Kentucky. State qualifications, and remuneration expected. BOX 3441, Air Conditioning & Refrigeration News.

REFRIGERATION SALES promotion opening. Manufacturer of heating and air conditioning equipment has excellent opening for man experienced in promoting sales of refrigeration for air conditioning and process application. Reciprocating units to 75 tons, centrifugals 50 tons and up. No refrigerators or walk-in boxes involved. Permanent location west central Wisconsin. All replies confidential. Write BOX 3443, Air Conditioning & Refrigeration News.

### EQUIPMENT WANTED

EQUIPMENT WANTED: 50-200 one or two-tray evaporators. 50-200 Ranco type KW-412, 1/2 H.P. 110-220 vac. refrigerator controls. No. LK-549 light assy. attached. 50-200 compressor shut-off valves, 3 openings (2 openings for 3/4" line, 1 opening for 1/2" gauge line). Write AUG. G. BARKOW MFG. CO., 2230 S. 43rd St., Milwaukee, Wisconsin.

### EQUIPMENT FOR SALE

WHOLESALE SEALED unit rebuilding. We will rebuild and convert your unit to "Freon-12." One year guarantee. Write for price list and shipping instructions. ADVANCE REFRIGERATION COMPANY, 829 East McNichols Road, Detroit 1, Michigan.

COMPRESSOR, 60 ton evaporative cooled type. Used on air conditioning application but in good condition. Bargain: \$1,900.00 F.O.B. Cincinnati. BIMEI CO., Cincinnati, Ohio.

PROMINENT BRAND vertical ice cream freezer. New; never used. Model V2-10W. Self-contained complete with 1 H.P. water cooled Copeland condensing unit; 2-1/2 gallon head; automatic controls; washing and drain facilities included. List \$2,104.00. Close out price \$750.00. Prominent brand 1 gallon freezette. New; never used. Counter top model complete with condensing unit; operates on 110-220 volts A.C. Just plug in. List \$1,050.00. Close out price \$375.00. FRIGITEMP CORP., 931 Bergen Street, Brooklyn 16, N. Y.

NATIONALLY ADVERTISED water cooler, 10 gallon pressure type. New and in original crates. \$149.50 Phila. We are always interested in buying new condensing units. GENERAL REF. & STORE FIXTURE CO., 856 N. Broad St., Philadelphia, Pa.

400 AS-IS refrigerators, many of them in operating condition. Norge, Kelvinator, Frigidaire, Leonard, Coldspot, Crosley and Stewart Warner. \$10.00 & \$15.00 in lots of ten or over. Also rebuilt & refinished refrigerators to look like new. \$40.00 & \$50.00. HANTOBER & CO., INC., 20 E. Church Lane, Philadelphia, Penna.

CLOSEOUT. SACRIFICING standard brand twelve tray ice cube maker remote @ \$45. Write for details. MANN REFRIGERATION SUPPLY CO., 15 Astor Pl., New York 3, N. Y.

### BUSINESS OPPORTUNITIES

REFRIGERATOR SERVICEMEN: Sell major appliances at a 30% saving over competitive brands of the same quality specifications, backed by a special five year guarantee insured on most appliances. Through the Triangle Company you take orders for appliances to be shipped direct from the factory to the customer. You get a franchise for three years without a sales quota, to sell any appliance you or your group are qualified to service. Write for details. TRIANGLE DISTRIBUTING COMPANY, 82 West Washington Street, Chicago 2, Illinois.

FOR SALE: 8 room modern 1 1/2 story gas heated home. Doing a thriving domestic and commercial business from my home; also contract service for twelve (12) retail outlets. Located in Northeastern Mich. Reason for selling: leaving state. A real opportunity for right man. Write BOX 3442, Air Conditioning & Refrigeration News.

### SCHOOLS

DETROIT AIR Conditioning Institute is accepting applications for enrollment in spring term classes starting March 14. Fully GI approved courses in air conditioning, refrigeration, heating, ventilating, sheet metal layout, heat pump engineering. Write for free information. DETROIT AIR CONDITIONING INSTITUTE, Dept. D, 4258 Woodward, Detroit, Michigan.

### MISCELLANEOUS

FRIGIDAIRE SEALED units, 1933 to 1947, remanufactured. Our exclusive method enables these machines to operate more efficiently than when new. Also rebuilding on all other sealed units. Write for price list. BRIGHT'S REFRIGERATION, INC., 14410 E. Jefferson, Detroit 15, Michigan.

NORGE SEALED units remanufactured and exchanged. Immediate delivery from stock, 1 year guarantee. Write for price and shipping instructions. Complete Norge engineering service. 22 years experience. MODERN REFRIGERATION CO., INC., 12541 E. McNichols Road, Detroit 15, Michigan.

## NEW INVENTION makes profitable business of your own

A manufacturer rated AAA-1 in Dun & Bradstreet and for 35 years the leader in its industry has produced a revolutionary new automatic home appliance which will be nationally advertised this spring in "Saturday Evening Post," "Shelter group magazines," etc. Franchises are now being issued.

The product is different from anything else being offered. It performs a very real service in the home, making housework easier and saving money. Previous types of equipment offered have cost approximately \$500 for the average American home. This revolutionary new model

takes care of the same house for \$200.00.

A man who knows how to run a business where sales are made to the homeowner by demonstration in the home can make an extremely profitable livelihood with this product. In many communities a business can be started with small capital requirements. Distributorships require more capital and more organization.

At no cost or obligation to you, write at once for full details so that you can set up your business before the national advertising breaks.

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3-13-50



## Armstrong Cork Advertisement Tells Story Of Preserving Perishables In Food Market

Pictures and Copy Give Public 'Behind the Scenes View'

LANCASTER, Pa.—The facilities and activities behind the scenes that make possible the supply of fresh and appetizing perishable foods at the food markets are not widely known to the general public. In an effort to tell the story of this modern miracle of supply to the general public, the Armstrong Cork Co. in cooperation with the National Association of Retail Grocers presented a full-color page entitled "Behind the Scenes in a Food Market" in the March 11 issue of *The Saturday Evening Post*.

The advertisement is one of a series designed to show how and where insulation is used in various commercial as well as industrial enterprises.

By means of a graphic cutaway view of a typical food market and accompanying editorial explanation, the advertisement tells briefly how modern refrigeration, cold storage, and perishable food handling "know how" have made modern food market distribution possible.

Offered free to members of food market management and readers of the advertisement are 21 by 22-in. full-color enlargements of the cutaway view and explanatory diagram. The enlargements are suitable for framing and may be used by food market management in training personnel and as an explanation to visitors of how a food market does its job. The enlargements can be obtained by writing to the Armstrong Cork Co., here.

The copy of the presentation reads in part:

"Watching what goes on in the rear of a modern food market is like a trip backstage in a theater. Here's where you can really see how food is handled—and a fascinating sight it is. All day long a steady stream of groceries moves from the trucks to the shelves up front.

"Perishable foods, of course, require special care. They depend upon temperatures to keep them fresh and

appetizing, and insulation is needed to help maintain and control these low temperatures.

"There's an ideal temperature for keeping every perishable food, and it must be maintained from the time the food leaves the processing plant until you buy it in the store. For example, meat comes in a refrigerated truck. Then it goes to a cooler where it's stored at 34° F. until it's needed in the cutting and wrapping room. Both of these rooms are insulated so that the temperature can be held exactly right. After it's wrapped, meat is put in the self-service display case which is also insulated and held at 38°.

"Since ice cream and frozen foods are held at zero, a separate storage room is needed. It's built with a greater thickness of corkboard to help keep those foods frozen hard. On the retail floor, ice cream is kept in an insulated cabinet and frozen foods in an insulated display case. Dairy products move right from the trucks to the insulated case where they're stored at 40°.

"Fresh fruits and vegetables also get special attention to keep them close to the ideal 48°. They're delivered to another insulated room. Then vegetables are trimmed and washed before you buy them from mechanically refrigerated display cases."

### Water Coolers for Pullmans Have Space for Baby's Milk

GLEN RIDDLE, Pa.—Currently in production at the Sunroc Co. factories here are 50 coolers for the Pullman Standard Co. of Chicago.

Each of the units incorporates a special refrigerated compartment for the preservation of baby's milk. The Model RC-4's are being constructed for installation in Pullman cars to be used throughout the Union Pacific lines.

## Gibson Times Promotions For National Ad Tie-In

GREENVILLE, Mich.—The old problem of how to organize nationwide retail promotions to provide for correct timing and complete dealer cooperation has been given "a streamlined solution" by the Gibson Refrigerator Co.

As explained by Gregory V. Drumm, manager of Gibson advertising and sales promotion, the new system is based upon a centralized mailing service that sends packaged promotions to a screened list of distributor-recommended dealers.

"Putting a practical plan like this into effect is a matter of detailed organization, proper timing, and constant follow through," Drumm says.

First, the Gibson distributors submitted lists of their active, promotion-minded dealers to the factory. Then the central mailing service was organized with addressograph plates made for each dealer.

With this groundwork laid, each promotion is assembled in the form of a compact "package" complete with instructions and order forms. Each promotion is mailed as one piece.

Samples of the dealer mailings are sent to Gibson divisional sales managers and all Gibson distributor salesmen several days before the mailing is made to dealers. In this way each dealer is visited by a Gibson representative shortly after he receives his package in the mail.

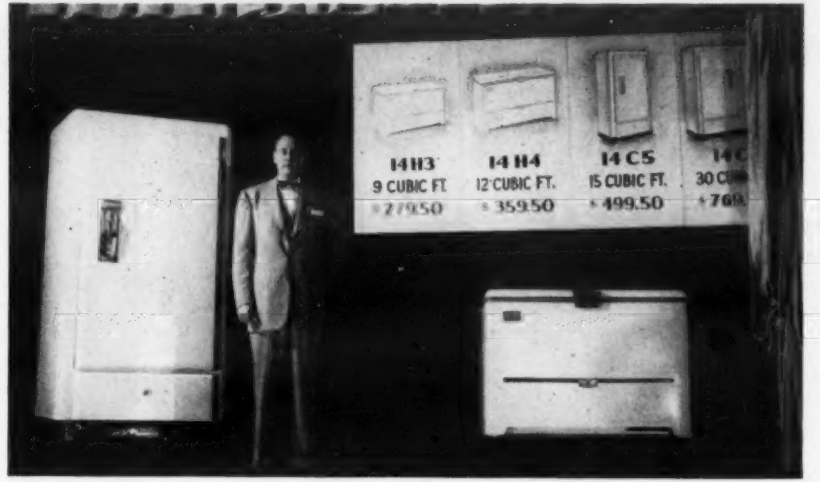
One time-saving device set up in the Gibson mailing service is the imprinting on each mailing with the individual distributor's name and address so that dealers orders are sent direct to the distributor.

Benefits of the new Gibson dealer mailing system are three-fold:

"The timing of each promotion, often a vital factor when tying in with national advertising, is carefully controlled," Drumm explained. "The percentage of whole-hearted cooperation from dealers is much greater, and the cost of preparing and mailing each promotion is held to a minimum."

The first nationwide Gibson dealer mailing, using this new system, was released Feb. 6.

## Novel Dramatic Production



Frank E. Purcell, Carrier merchandising specialist, introduces the company's 1950 line of food freezers during one of the dramatic shows presented for dealers in five major cities. Carrier is introducing a chest-type freezer to supplement its upright models. Forty-seven new air conditioning and refrigeration products were presented. (Price of the upright freezer, partially obscured by the curtain, is \$769.50.)

## Carrier Road Show Takes Story of New Refrigeration, Air Conditioning Products to 2,000 Dealers In 5 Cities

SYRACUSE, N. Y.—Carrier Corp. introduced its 1950 line of new products with a novel dramatic show which was viewed by more than 2,000 dealers in five major cities.

The show was staged under the direction of Dramaturgy, Inc., of Cleveland, specialists in sales presentation for industry, and Carrier executives turned actors in introducing 47 new air conditioning and re-

frigeration products in 53 different stage settings.

A 70-ft. private baggage car was required to transport the stage props.

Aside from nine Carrier featured "actors" and 15 Carrier "bit players" from each district, the company included three professional actors, four stage hands, one stage manager, and one director, while five local stage hands were hired at each city.

## SHERER'S Atomized Air with Directional Flow makes big savings in operating costs to

WIN NEW CUSTOMERS for you



Model 2906 Open, self-serve display case occupies only six lineal feet of floor space, yet has almost 25 sq. ft. of refrigerated and non-refrigerated selling display space. Illustration shows two joined for continuous display.

Sherer Model 2906 and 2806 Open, Self-Serve Display Cases will open the door to new sales for you. Their amazing story of lower operating costs will convince prospects—change them into customers.

Due to an exclusive new refrigeration application, these Sherer cases maintain constant food-preserving temperatures using only a 1/2 H.P. condensing unit (in 90° room) instead of the usual 3/4 to 1 1/2 H.P. units. Your customers want these savings in operating costs.

A scientific new coiling system\* directs the flow of air over, around and through the merchandise so there is no spillage. Cooled air is recirculated without loss. This means less running time is necessary to operate these new SHERER cases with this amazing new coiling system, even with a 1/2 H.P. condensing unit. This is another Sherer first resulting from constant efforts to give you refrigerator cases that will sell easier because they perform better for your customers.



Model 2806 is a multiple deck, six-foot refrigerated display case without the mirrored superstructure of Model 2906. Both cases can be installed as single units or easily joined for continuous displays.

dealers:

Sherer has the complete line, the prices, the name and the promotion to make '50 a better year for you. Write today for franchise information.



SHERER-GILLETT CO.

Marshall, Michigan

A PRIZE PACKAGE FOR YOU  
SIMPLY PLACE A SMALL INITIAL ORDER FOR FAMOUS



**SNO-BREZE AIR COOLERS**  
We give you all the information and material you need to understand and promote this highly profitable business.

HERE'S THE  
SNO-BREZE IS NOT JUST A FAN IT COOLS THE AIR TOO!



Retail from  
**29<sup>75</sup>**

- Tested and proven Sno-Breze units fully guaranteed.
- Complete selling, installing and servicing details.
- Eye catching, interest arousing animated display.
- Counter cards, string tags and direct mail material.
- Mat service and cooperative advertising program.
- 100% company paid newspaper ads in leading markets.
- Heard on several coast to coast radio networks.
- Seen in LIFE, TIME, BETTER HOMES & GARDENS and other leading national consumer magazines.

Get ready NOW to Snow-ball your profits with Sno-Breze.

MAIL COUPON TODAY FOR FULL DETAILS

**Palmer**

MANUFACTURING CORPORATION  
PHOENIX, ARIZONA DEPT. N-1  
Branches in Los Angeles, Cal., Dallas & Lubbock, Texas

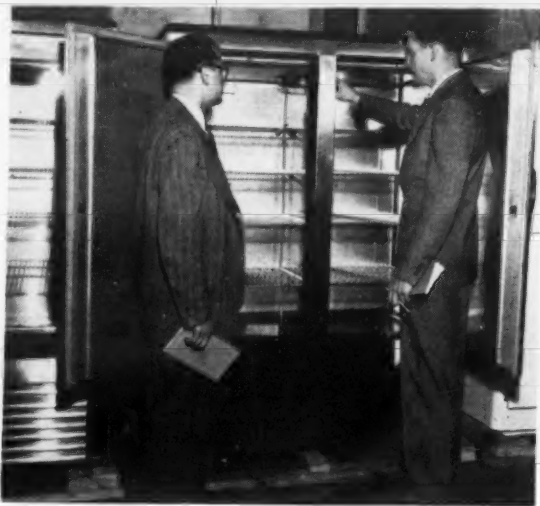
Please rush details on Sno-Breze sales package  
We are dealers ☐ Distributors ☐

FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

41 YEARS AIR CONDITIONING LEADERSHIP



## Field Men Look Over Jordon's 1950 Commercial Line



John Mack (right), of Jordon's sales division, points out new high-humidity blower coil to Harold Binder, Jordon factory sales representative. The new ceiling-mounted coil is said to increase cooling efficiency and takes up less storage space.



Sidney Kleiman, chief design engineer, points out construction features of 1950 model frozen food merchandisers, explaining how heating elements around top track assemblies reduce formation of condensate and frost on exterior surfaces.



This is Jordon's newly-introduced glass-front frozen food merchandising case.

## Jordon Showing--

(Concluded from Page 1, Column 2) dising and storage cabinets, and a greatly widened five-year protection plan on hermetic units.

This latter warranty, Hayes stated, "pays the serviceman for replace-

ments in the field even during the first year period."

Available for the inspection of field men was a complete exhibit of new Jordon sales help materials including photo manuals, new catalogs, advance reproductions of forthcoming trade and consumer advertising, and new illuminated window signs made for the use of Jordon dealers.

Alfred Levin, advertising and sales promotion manager, commented that the Jordon message of "a line for every market" will reach every dealer, wholesaler, serviceman, and thousands of ultimate consumers on an unbroken schedule for the balance of the year.

Robert J. Duffy, general sales manager, pointed out that Jordon equipment was now used for practically every type of commercial refrigeration with new uses showing up continuously in the sales records.

In his analysis of the market for Jordon refrigerators, he declared great gains had been made in the last year in the restaurant field, and in hospital as well as institutional use.

Sidney Kleiman, chief design engineer, led the field men on a factory tour. The group watched all processing from the initial cutting and shaping of steel on giant shears and automatic brakes to the final inspection and testing of equipment on specially designed laboratory apparatus.

Of particular interest was the placing of a hi-baked auto body finish to the cabinets. This is done in new pressurized paint rooms equipped with huge gas fired ovens and overhead cranes. The process includes cleaning and degreasing of all metal parts, rustproofing of the metal, application of a special prime coat, and a power spray finish of four

coats of enamel which dry in the ovens to a brilliant acid and alkali-proof gloss.

Other factory men who participated in the program were John E. Mack of the sales division and Joseph Di Tullio of the refrigeration department.

Field men attending the meetings were Frank Adkins, James A. Bertha, Harold Binder, Thomas Binder, Wynne Cannon, Samuel Chernoff, Lewis Girion, Allen Green, Forrest Grimes, Theodore Gruber, Harry Hanover, Don Manning, Samuel J. Michael, Joseph Miller, Frank P. Murphy, Eric Thormann, William J. Wawrzonek, and Joseph Wiley.

## Development of New Refrigerant--

(Concluded from Page 1, Column 4) metallurgist of Carrier Corp., who was assisted in the work by Winston H. Reed, holder of a Carrier fellowship at Syracuse university.

The new refrigerant is a carefully proportioned mixture of two fluorinated hydrocarbons. It is what scientific circles term an azeotropic mixture, because it always boils at the same constant temperature corresponding to a particular pressure.

Chemically it is composed of dichlorodifluoromethane ("Freon-12") and unsymmetrical difluoroethane (Genethron-100).

The discovery of Carrene-7 came as a result of a search for a refrigerant which, when charged into a hermetic system designed for "Freon-12" and 60-cycle power supply, would maintain the same capacity when 50-cycle power was used.

Carrene-7 has been found to be an ideal solution to the 50-cycle problem since it gives almost exactly the same capacity with 50-cycle current as "Freon-12" does with 60-cycle current, or a capacity about 18% higher than "Freon-12" where the same compressor is employed at the same speed.

The pertinent research leading to the discovery of Carrene-7 was described by Pennington and Reed in a paper entitled "The Evolution of a New Refrigerant."

Part of the paper was devoted to the development of criteria for judging and predicting the properties of promising refrigerants, thus avoiding the impractical task of investigating all of the 9,000 known single compounds.

With the realization that a single compound was not likely to be found, the scientists directed their study toward finding a mixture which would boil at a constant temperature while the pressure remained the same.

An essential requirement was that the atmospheric boiling point be between -27.5 and -30.7° F., and it was finally discovered that Carrene-7 had a boiling point which fell within this range.

The authors reported that many factors, in addition to refrigeration capacity, were considered in the development of the new refrigerant.

Among these were chemical stability, flammability, toxicity, effect on metallic and non-metallic materials used in refrigerating systems, and certain thermodynamic properties affecting performance.

Carrene-7 satisfies all of the important requirements for a useful refrigerant. It is chemically stable, non-inflammable, physiologically safe, and does not attack or corrode the common materials of construction. Its cycle efficiency and other thermodynamic properties are very similar to "Freon-12."

Limited applications have already been made, and plans are being formulated for broad commercial use.

## Frigid-Freeze Shipments Gain

ALBION, Mich.—Shipments of Frigid-Freeze standard ice cream cabinets in February showed a gain of 147% over February, 1949, according to Edward R. Legg, president of Refrigeration Corp. of America.

# TYPHOON

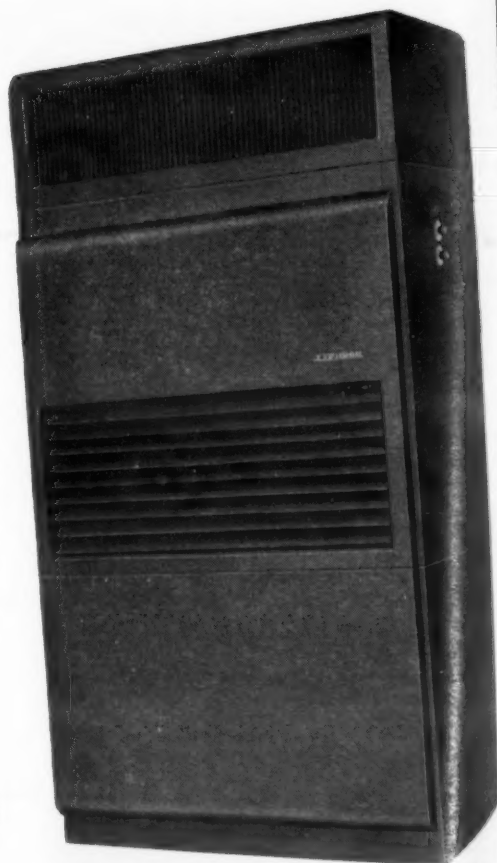
## Blueprinted the Major Post-War Changes in AIR CONDITIONING

From the drafting boards of Typhoon engineers came most important advances in post-war air conditioning... trail-blazing "firsts" that set a new trend, started a wave of re-designing throughout the industry. The major improvements pioneered by Typhoon have been fully proven in action—through topnotch performance in actual installations the world over. Typhoon... product of more than 40 years of air cooling experience... solidly engineered to help build a solid air conditioning business for Typhoon dealers.

**Complete Line of**  
PACKAGED  
**AIR CONDITIONERS**  
**1½ to 20 Tons**  
**and Evaporative Condensers**  
**3 to 20 Tons**

Our District Sales Managers are ready to bring you complete information—write today for prompt action.

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## ... The Public Is Fair

We recognize that we will occupy in the public mind only the position that we deserve. The public is fair—but it is discriminating. Therefore, every unit of equipment which we sell either helps or mars our reputation. And since we aspire to be regarded as good manufacturers of a good product, we design and build accordingly.

Seventeen years ago this advertisement appeared in the News. Today Universal Cooler believes in the same high principles and operates on the same ethical policy.

**UNIVERSAL COOLER**

DIVISION NEWPORT STEEL CORPORATION  
Marion, Ohio